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THE CANADIAN HORTICULTURIST

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The Canadian Horticulturist

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The Western Provinces as an Outlet for Ontario Fruit*

J. W. Crow, Ontario Agricultural College, Guelph.

ACCURATE or even approximately correct figures on the quantities of fruit shipped to the western provinces year by year are difficult to obtain. Transportation companies and shippers are in possession of the only sources of information on matters of this kind, and these are not often open to public inspection.

I am indebted to Mr. Charles F. Roland, Development and Industrial Commissioner for the City of Winnipeg, for the following estimate of the total quantities of fruit received in that city from all points during 1907. Fruit from Ontario and from the central United States is usually distributed throughout the prairie provinces from Winnipeg, and is included in this estimate. These figures do not include, however, large quantities which enter these provinces from British Columbia, Washington, Idaho, Oregon and California, and which are distributed from Regina, Brandon and other points west of Winnipeg.

"Fruit received in Winnipeg in car lots from all points during 1907: 48 cars of strawberries, 430 cars of tomatoes, 680 cars of peaches, pears and small fruits other than strawberries, over 600 cars of oranges, and upwards of 1,000 cars of apples. Large as these receipts may appear, one can judge that the receipts will be even double in a very few years, as the population of Winnipeg has grown from 67,000 in 1904 to 118,250 in 1908. I am informed that over seventy per cent. of these receipts was consumed locally."

IMPORTS TO WINNIPEG

The proportions of fruit received from different points and handled in Winnipeg, are estimated by the McNaughton Fruit and Produce Exchange as follows: California, Oregon and other north-western states, fifty per cent.; Ontario, thirty-five per cent.; British Columbia, fifteen per cent.

Mr. A. Mallinson, who has this season bought very largely in Ontario for western firms, estimates the total quantities of fruit shipped to the west from Ontario this year as follows: "83,500 barrels of apples, including a few boxes, estimated at three boxes per barrel; 220 car loads of grapes, estimating 2,400 six-quart baskets as one car load; 73 car loads of tomatoes, pears and cantaloupes. Included in the last item would, in some cases, be a few baskets of plums. A few peaches went forward also."

SHIPMENTS HAVE INCREASED

Mr. A. Gifford informs me that fully twenty per cent. can be added to the above estimate of total shipments. Mr. Mallinson states further that shipments of fruit from Ontario to Winnipeg have increased fifty per cent. during the last five years, and fully 100 per cent. in the last ten years.

From a communication received from Mr. A. McNeill, Chief of the Fruit Division, Ottawa, I quote the following: "With reference to the apple trade of 1907, the North-west Transportation Co. handled 100,253 barrels; the C. P. R. handled 18,720 barrels; other boats handled about 10,000 barrels; a total of 128,973 barrels; the G. T. R. and American lines, not known, probably half the C. P. R."

ONTARIO FRUIT IN WEST

These figures show that a large and growing market for fruit exists in the prairie provinces. They show also that large quantities of fruit are annually being marketed there. They fail to show, however, anything regarding the kind or quality of fruit most in demand in that market, and on this point a great many westerners have most decided opinions. The writer had the pleasure(?) of interviewing large numbers of people at Winnipeg Fair this year regarding Ontario fruit methods. The opinions obtained regarding the grading and branding would have delighted the heart of a British Columbia or Oregon shipper, but they surely operated to humble an Ontarian's pride in the quality of our goods and in the honesty of certain of our citizens. A very large number of western people know from experience on the old homestead in Ontario, of the quality of fruit produced here. They will tell you emphatically, however, that since residing in the west they have too often been unable to secure value for money invested in fruit from the home province. They will tell you that in order to get what they pay for, they are compelled to purchase the honestly marked and attractive packages from British Columbia, Oregon and other western points. This condition of affairs, it must be admitted, is not universal, but it is far too common. It is unfortunate that we have in Ontario careless, ignorant, or dishonest growers and shippers, as our hitherto enviable reputation has suffered severely at their hands.

A WESTERN HANDICAP

One hears, too, of wilful unscrupulousness at the other end of the line and it must be said in fairness to Ontario men that not all of the fault lies at the latter's door. In some cases, if we can believe all one hears, western receivers have encouraged misbranding of goods by such advice as this: "Send on your No. 1s if you have any; if you have none, send on your No. 2s, and either change the brand yourself or leave it to us to make No. 1 stock out of it." This is not intended as an arraignment of all fruit shippers and handlers and the honest men in the business (fortunately they are in the majority) will not take it as such. There can be no good reason, however, for trying to hide the real state of affairs and one learns with pleasure of a very radical change which has taken place this season in the methods of transacting business.

(Continued on Page 15)

The Most Practical

I am much pleased with THE CANADIAN HORTICULTURIST. I think that it is the most practical paper of the kind printed. Being a fruit-grower and also an inspector of orchards for the British Columbia Government, I take several fruit papers, but THE CANADIAN HORTICULTURIST is the best of all.—J. A. Coatham, New Westminster Co., B. C.

*An address delivered at the convention of the Ontario Fruit Growers' Association held last November.

Fungous Diseases of Ontario Orchards: Pear Blight

M. B. Waite, Pathologist in Charge, Investigation of Diseases of Fruits, U. S. Department of Agriculture

THE well known bacterial pear blight caused by a tiny bacillus is one of the most prominent orchard diseases in Ontario. It attacks particularly the pear and the apple, but also affects the quince, the Siberian crab apple, the wild crab apple, the hawthorns, and practically all the fruits of the pome family. The germs producing the disease enter the tree in three different ways: First and most commonly, through the blossoms, being distributed from flower to flower and tree to tree very widely through bees and other flower visiting insects; second, through tender tips of growing shoots, including the water sprouts at the bases of the trees; and third, directly into the fleshy bark. Infections of this latter type are few in number but result in a very serious form of the blight. The amount of damage resulting from an infection may vary enormously. Thousands of infections simply kill the blossom cluster or a few inches of the tip of a growing twig. On the other hand the blight may run down on to large branches or run clear to the ground, killing the whole tree, or it may spread from a lateral infection, doing more or less damage. The spread of the disease, the number of infections and the amount of extension of the blight on a tree after infection are dependent upon a number of different conditions. The factors controlling an outbreak of pear blight may be summed up as follows:

First.—The presence of the germ and the amount of holdover blight available for reinfection.

Second.—The amount of bloom on the trees. It is difficult for young orchards to catch pear blight until they blossom.

Third.—The number of insect visitors available. This is largely, however, constant if the next is favorable.

Fourth.—The weather during blossoming time. If the weather is favorable for insect activity and nectar secretion; the blight germs are generally carried about. On the other hand rainy weather or cold dry sunny weather discourages the spread of blossom blight.

Fifth.—The variety and species of the tree. Each different horticultural variety and each species of pomaceous fruit has a different relative resistance to the disease.

Sixth.— The age of the tree. Young trees are more susceptible than older ones. The most susceptible age comes at the time the trees are first in bearing, say the first four or five years they are in bearing.

Seventh.—The vigor of growth. This is influenced by fertility of the soil, soil moisture conditions, favorable weather, artificial manuring, fertilizing and cultivation. In general, those conditions most favorable to vigor of growth of the tree are most favorable to the blight, and conversely those influences which dwarf or check the growth of the tree tend to hinder the progress of the blight.

Most of the blight dries out in the trees during the summer. On the other hand, occasionally at the bases of the blighted twigs or more commonly on the thick, fleshy bark on the large limbs and on the bodies of the trees, the blight keeps slowly progressing until the close of the season. The germs die out of the dead bark but keep alive on this advancing margin and the cool, moist weather of winter, though it checks their growth, tends to keep them alive until spring. This type of blight we call "holdover blight" and is the source of the new infections each season when the trees spring into growth.

COLLAR BLIGHT

I wish to call particular attention to the forms of pear blight known as body blight and collar blight. Body blight occurs abundantly on young trees, more particularly on young Bartlett and other pear trees, but it may even kill young apple trees. Frequently the blight gets into the thick fleshy bark on the body of young trees either by running in through a fruit spur or water sprout or by means of the punctures of insects or mechanical injuries. Possibly the germs may enter directly into the fleshy bark through growth cracks. Once in the fleshy bark the germs rapidly spread in all directions. They extend vertically in the direction of the vessels and fibres more readily than they do laterally. Oftentimes the infection is at the ground line or at the collar of the tree. Sometimes even below the soil line. The blight then spreads on the moist soil in all directions. Below the soil it more readily spreads in a lateral direction around the collar and down the bark of the roots. Frequently large irregular areas are formed and quite often they girdle the trees, absolutely killing them. Sometimes a V-shaped area runs up from the point of infection on to the body. French stocks are often more susceptible to blight than the grafted top even though the latter may be the susceptible Bartlett.

Trees affected with body blight usually take a year to die. This is unlike the branches, which are, of course, killed by the blight of the current season. Trees often live another year, and sometimes a second, even though completely girdled, and show the destructive effects the season after the blight has done its work. Sometimes the blight germs have died entirely out of the bark and the dead bark has dried up and yet the tree dies the following year from girdling.

In case of collar blight, where it does not completely girdle the tree, the tree often takes two or more years to die, but finally does so from the girdling. A small amount of blight at the collar or around the body does the maximum amount of injury.

This type of blight may be regarded as the most injurious and more trees are killed by this form as a rule than from blight in the top. It is also the hardest for the orchardist or inspector to find. However, it produces one very striking symptom that often leads to its detection. The foliage on these girdled trees, or even on the particular side of the tree attacked, begins to take the reddish autumnal color from midsummer on. In walking through the orchard after the first of August these reddish trees or reddish parts of trees are usually distinguishable from a distance. These premature reddened or bronzed leaves often contrast very strongly with the normal dark green foliage. This is particularly true of well-kept orchards. The reddening of the foliage is not always an infallible guide as sometimes branches color their leaves red from other diseases, root troubles, girdling by mice, and unknown causes. On examining these reddened trees, however, the blighted area can usually be found.

At least two types of frost injury also very closely resemble pear blight at the collar. In one of these the tree is injured from the soil line upward, usually on the sunny side but not always so. Blight is easily distinguished from this winter sun scald when the latter occurs as an elliptical are on the main trunk of the tree from the soil or snow line nearly to the branches. On the other hand, another type of frost collar girdle reaches but a little above the soil line or only occasionally extends upward in a V-shaped area but spreads well under the ground, partially or wholly girdling the tree. Still another type is that of root winter killing. In this case the roots near the surface of the ground are frozen and killed, while the top of the tree may or may not be injured by frost. It is necessary to know these other collar injuries in order to distinguish them from true collar blight.

(To be Continued in Next Issue)

Photographs of pruning and spraying scenes are requested for publication in THE CANADIAN HORTICULTURIST.

Young Trees vs. Old Trees*

Prof. G. Reynaud, Oka Agricultural Institute, La Trappe, Quebec

ONE of the most difficult problems that confronts the fruit grower of the province of Quebec, is that of labor at the time of picking, packing and shipping. What a torment to him when the trees are loaded with ripe fruit and there is no one to pick them?

If, perchance, he discovers a few trained pickers and packers, then on account of their scarcity he is at their mercy in as much as salary and also celerity and perfectness in work are concerned. Hence, in too many cases the sale of the crop *en bloc*. This means a loss to the grower who desperately throws himself directly into the hands of the fruit dealer, as the latter appears to him as a being sent by Providence itself to save the situation, but who too often saves the situation at the expense of the grower and of the development and prosperity of the fruit growing industry.

Encircled between extra high price of labor and the decidedly too low prices offered by the dealer, who buys the fruit *en bloc*, and picks it himself in the grower's orchard, the latter quite often chooses to neglect the orchard, and the fruit industry of the country is by no means pushed forward by such neglectfulness. I know growers, who, for want of decent laborers at decent prices, are compelled to shake and throw down the fruit from the trees and sell it bruised and harmed, as it is, for what they can get on the streets. Having eventually to deal with that scarcity and high price of labor, one must have recourse to some means or methods which will reduce to a minimum the amount of labor required, especially in the fall.

OLD ORCHARDS REQUIRE MUCH LABOR

If one compares the amount of labor an old orchard necessitates, with that required by a younger plantation, he finds out that the comparison as to lighter work is in favor of the junior orchard. Forty-year-old trees have acquired such a height and width that taking the fruit from them is long and sometimes hard or unpleasant work. Some of the fruits are so much out of reach that the pickers are tempted, perhaps compelled, to simply fling them on the ground by shaking the boughs. This fruit will necessarily be harmed, and will bring but a low price.

Even if the fruit is not cast on the soil, it is liable to be damaged by the fingers of the picker who is annoyed by the work he has to perform in the midst of long and numerous branches and boughs. The fruit is seized nervously, sometimes rudely, by the fingers, squeezed too hard, and then goes to the poor stock and with it on the ground often go the fruit buds, which are the hope of the next crop.

The fruit dealer's men care not for the future of the orchard, as the orchard is not theirs, and when they leave it void of fruit, you oftentimes can behold the soil strewn with fruit buds, broken branches and even boughs violently torn off the trees. Thus mutilated, bruised and weakened, how can the tree win the battle it has to fight every day and every season against insects, parasites, diseases, or the influences of the weather?

It is important, therefore, that the grower should limit the acreage of the contemplated orchard to the sum of competent labor he supposes he will be able to dispose of when the trees have grown tall.

Young trees generally bear larger fruits. The Yellow Transparent apple trees illustrate this fact, at least in the orchard I have charge of. As they grow old, their fruit grows proportionately smaller, and is therefore less saleable. So, I consider that it is not business-like to keep old Yellow Transparent trees. The same may be said of a few other varieties, and although proper fertilizers can remedy the evil, at least to a certain extent, the tendency to give small fruit remains with the old tree.

With young trees not only is the fruit larger, and, in consequence, more fit for the best market, but the picking is easier and costs far less. No long ladders and encumbrances are necessary and the work is swiftly, easily and properly done.

The younger orchard at La Trappe comprises two varieties of apples,—Wealthy and Ben Davis. In one day we picked and packed eighty-seven barrels of No. 1 Wealthy apples, and another day, eighty barrels of Ben Davis, not even using a table to grade the fruit; whilst with the same staff in the old orchard, it is a heavy task to get out thirty barrels a day.

From this, and other facts, I conclude that in this province our aim must not be to secure gigantic trees but simply medium-sized trees, and to care for them so that they will give the maximum of their producing ability before they grow too old, too large, and too tall, and before they give smaller fruits. When they begin to do so, we can have their place taken in the orchard by a younger and stronger generation of fruit trees.

Perdrigon Plum Trees at the Oka Agricultural Institute
Professor Reynaud, the President-Elect of the Quebec Pomological Society, stands in foreground

Mr. Craig told us last year that he had seen in Missouri a 2,000-acre peach orchard, and he added that in the same district apple and peach trees lived very few years, thus compelling the proprietor to keep busy renewing the plantation. Sooner or later we shall have to do the same, on account of the scarcity of labor at the time of picking and packing. The same gentleman also told us that at Grimsby, peaches, plums and smaller fruits have now taken the place of apples. It would be interesting to investigate this in order to know whether the difficulty of picking apples from large trees has not had something to do with this change.

USE ORDINARY SIZED VARIETIES

How can one obtain an orchard of only fair-sized trees? There are two

*A paper read at the convention of the Quebec Pomological Society held at Macdonald College, last month.

ways. Firstly, if the trees to be planted are grafted on seedling stock, the orchardist must stick to ordinary sized varieties and plant closer together. A striking illustration of this plan can be seen at the Central Experimental Farm at Ottawa, where Mr. Macoun has planted a very interesting orchard of Wealthy. Other varieties, such as Yellow Transparent, Duchess, Lowland Raspberry, Wealthy, McIntosh Red, Wolf River, Ben Davis, Salome and Fenouillet Gris, will answer the same purpose. Their fruit is early, large and quickly picked. Those who can obtain more labor, can have Fameuse, Golden Russet and Canada Red.

PLANT DWARF TREES

Another way is to plant dwarf trees. I have seen such an orchard in Quebec. The small trees which composed it were hardy and their fruit within hand reach. It contained a young Perdrigon plum tree from our nurseries, and although it was only in September, and in Quebec climate, the little Perdrigon was heavily laden with nearly all ripe fruit. It may be objected that such an orchard or such orchards would require what we call intensive culture and also special knowledge, but thanks to those two neighbor-institutions, the Macdonald College and the Oka Agricultural Institute, the country will soon be supplied with competent young specialists in orcharding and fruit-growing, who besides having knowledge that they can use for themselves will also be endowed with the necessary qualities and training to communicate their knowledge to their fellow-countrymen.

What Amateur Gardeners Can Do in January

THERE is not much to do outdoors in January. During warm days, watch the trees and bushes for eggs and cocoons of insects. Destroy all that can be found and decrease the number of pests for next year. Some pruning may be done. Remove dead limbs and branches and cut out any limbs and branches that are directly crossing others and injuring them by rubbing when blown about by the wind.

Indoors, give the house plants proper attention but do not over-do it. Most window plants delight in a moist atmosphere. Keep a pan or two of water under the hot water or steam radiators to keep the air moist. It is desirable occasionally to sprinkle the foliage of plants with clear water on warm, sunny days.

As a rule, fertilizers need be applied to house plants only when the pots have become too full of roots which have exhausted the soil. Use some prepared commercial plant food.

In temperatures, avoid extremes of either heat or cold. For most window plants, a temperature of sixty-five to seventy degrees Fahrenheit is ample during the day, and from fifty to fifty-five degrees at night. The plants nearest the window can be protected from zero weather on cold nights by placing sheets of newspapers between them and the glass.

Ventilate the room on fine, sunny days. To avoid direct draughts on the plants, admit the air by lowering the top sash of the window.

Be on the look-out for aphids, red spider, scale and mealy bug. For the former, use a strong solution of tobacco water. Red spider may be kept in control by sprinkling the foliage occasionally, especially on the lower side; it does not like a moist atmosphere. To get rid of scale, wash the leaves with strong soapsuds and rinse afterwards with cold water. An old toothbrush dipped in soapy water also will remove scale easily. Remove mealy bugs by brushing them off. Good culture is the best preventive of disease in plants.

Give your potted bulbs proper care. Do not allow the soil in the pots to become dry. To prevent extremes of temperature, remove the pots from the window at night.

If you want home-grown plants for Easter, begin now. Try hortensias, greenhouse spiræas and freesias. Buy spiræa roots now and pot them. Spiræas must be kept constantly moist. From the time they start to grow, they will require about twelve weeks to come into bloom.

An occasional hour may be spent profitably and pleasantly in making plans for next year's gardens. Draw a diagram of the vegetable garden and of the flower garden to scale. Draw lines to represent the rows and the beds as you want them to be, and write the names of the vegetables and flowers that you intend to grow in them. Change the positions of the various kinds of vegetables from that of last year. Most of them do better when not grown in the same place annually.

If you intend to have a new lawn next year, make your plans and selections of shrubs now. Bear in mind the first principles of landscape gardening, which is that the lawn is the basis of the whole picture, and should not be treated as a nursery for planting all kinds of trees and shrubs promiscuously. Keep it open and plant the trees and shrubs around the borders. Place the latter mostly in groups. Shrubs may be planted at the junctions of driveways and walks. The latter features should be as few as possible. If the grounds are large enough, plan to have the roads and walks curve gracefully from the point of entrance to the house.

A Field of Asters and Gladioli
Grown by Mr. Jas. Gilchrist, Guelph, who stands in center of illustration

The Civic Improvement Movement in Ontario

Prof. H. L. Hutt, Ontario Agricultural College, Guelph

(Continued from last issue)

IN some places, the local board of trade has taken the initiative in promoting civic improvement, because they realize the fact that beautiful surroundings are a potent factor in attracting citizens and increasing trade. The Orillia Board of Trade a couple of years ago published a neat little booklet encouraging the citizens to unite in making Orillia an attractive spot for summer visitors.

From the *Ottawa Citizen*, we clip the following: "The people of Ottawa are taking an increasing pride in the appearance of the capital, which the Dominion Government has also done so much to beautify. Ten years ago there was only one park in Ottawa, and the most of the private residences were walled in by high fences; now there are seven parks, nearly all the fences have been taken down, so that gardens and lawns are open to the street, and those having available grounds for the purpose are planting them with flowers and shrubs, and generally adding to the beauty not only of the premises but of the locality." And so the improvement is going on steadily in many parts of the country.

VALUE OF HORTICULTURAL SOCIETIES

In some places the local horticultural societies have taken an active part in promoting civic and rural improvement, particularly along horticultural lines. In other places the work has been confined too much to a few special features of improvement, such as floriculture or window gardening. Such societies should be encouraged to reach out and take a broader view of their opportunities. I would suggest the following as a few of the avenues through which the local societies might work to good advantage in promoting improvement in their respective communities:

1. By conducting an educative campaign in awakening public interest to an appreciation of the value of neatness, order, and beautiful surroundings. To this end it is well to make good use of the local press.

2. By enlisting the support of the rising generation by flower competitions, and also by making school as well as home surroundings as beautiful as possible. Young people brought up amid beautiful surroundings may be counted on in later years to work for rural and civic improvement wherever they may be placed. I am looking forward to an early awakening of school boards to the importance of improving school grounds, and have prepared a bulletin on that subject for the Ontario Educational Department this year.

3. By seeking the co-operating of other influential local organizations, such as the town council, board of trade, or school board, which may be willing to assist in making local improvements. In union there is strength.

4. By working for the appointment of progressive local park boards or commissions and urging such boards to get possession of suitable lands for park purposes while they are cheap. Plans can then be adopted for their gradual development and improvement.

The Ontario Parks Act provides that one-half mill on the assessment may be used by any park board so appointed for such purposes. And whenever such money is judiciously expended, the increased value of adjacent lands will soon pay a good share of the cost of such improvements in increased revenues from taxes.

The park board in any town might also be asked to establish a small nursery, where trees, shrubs, and vines could be grown in quantity for civic improvement work, and could be supplied to the citizens at cost for planting in their own grounds.

5. Every property holder should be encouraged by precept and example to contribute his share to the general improvement of the place by making his own lot as attractive as possible. If every citizen did his share, what a change would take place in the appearance of our country. Tourists from all over the world would come to see Beautiful Ontario.

A Bed in Gore Park, Elmira, Ontario, Planted by Local Horticultural Society

LEGISLATION DESIRED

There are a few things upon which it would be desirable to have some legislation in this country, and which this association might be instrumental in getting, if it were to join forces with other organizations which have been asking for the same:

1. Legislation to control the billboard nuisance and advertising monstrosities which disfigure architectural beauty as well as natural scenery.

2. To prohibit the butchery of street and roadside trees by telephone and telegraph companies, and to compel the placing of their wires underground wherever they enter town or city limits.

3. To prevent dogs running at large within town or city limits.

There may be room for diversity of opinion upon all of these questions, but there can be no two opinions about it, that dogs and bill boards and unsightly telegraph and telephone poles are at enmity with civic improvement.

Some notes on new peonies, by Mr. R. B. Whyte, Ottawa, will be published in an early issue.

An illustrated article on "Window Boxes, Hanging Baskets and Rustic Stands," by Mr. William Hunt, Ontario Agricultural College, will appear in the next issue of THE CANADIAN HORTICULTURIST.

Best Half-hardy Tub Plants*

Roderick Cameron, Assistant Superintendent of Parks, Toronto

THE topic, "Tub or Half-hardy Plants, their Usefulness and the Care of Them during the Winter," is a large, varied and very difficult one. The plants that could be made to do duty in this respect are legion, but I intend to draw attention only to a few that I consider the best or most useful that I have had to do with. The varieties of plants best suited for such purpose are as follows:

Buxus or tree box, which can be got in about a dozen varieties, green, golden and silver-leaved, large and small-leaved, standard and pyramidal forms. The *Euonymus Japonicus* as evergreen bushes can be got in many varieties, green, golden and silver-leaved, beautifully marked and of first quality.

The *Acuba Japonica*, like the euonymus, can also be got in several varieties and beautiful markings, and there is no plant grown that will stand soot, gases and dust better. The acubas are the plants that are so much used in vases and so forth, in smoky cities in the old world where little else will grow but them and the ivy. While on the ivy, let me say that if the different varieties were trained in pyramidal form on wire frames, especially the variegated forms, there are few plants that can surpass them in beauty.

The *Laurus nobilis* is probably used for this purpose in America more than any other plant, and these sweet bays can be procured in standard and pyramidal forms; their dark green, prim form claim for them a place for all decorations in church, cemetery or hall.

The *Nerium Oleander* can be used to good effect in the angles of buildings, along with them may be planted the *Elæagnus pungens*; they can be got in different varieties of varigeation, green, silver and gold.

Large plants of *Caryopteris Mastacanthus* can be used to good advantage in corners along the paths; this plant and the chaste shrub *Vitex Agnus-castus* are two of the latest to bloom and both are much admired for their fragrance.

Here and there among such plants, but separate from them on the lawn, may be placed *Hydrangea hortensis* in several varieties to give some bloom to the whole setting. *Catalpa bignonioides* var. *nana* (*C. Bungei*) is quite hardy, and, when good heads are formed, they look quite conspicuous when grafted as standards. *Ulmus parvifolia* is also hardy and will make excellent standard round-headed plants. *Yucca gloriosa* and *Y. aloifolia* should be used in such planting and would tend to give a more tropical effect. *Abelia floribunda* and *A. grandiflora* make excellent tub plants and bloom all summer if kept in cold storage all winter. *Thuyopsis dolobrata* and its variegated form should also be employed in such planting since they are evergreens of choicest quality.

*Extracts from a paper read at the last convention of the Ontario Horticultural Association.

USE OF WIRE BASKETS

I have been mentioning the above as tub plants, but tubs at their best look out of place, are expensive, and require constant care and watering. In place of tubs, I use baskets made of half inch mesh chicken netting. They can be made by any handy man. Line the same with moss or thin tough sods. Place the plants and fill up tightly with soil. Water well by dipping. They are then ready to be planted where wanted, as if planting a tree with a ball of soil attached to it. It will be seen that by adopting this method the plants can be lifted in the fall without disturbing the roots. The plants will require no care with water from the time that they are planted until they are taken up again in fall.

STORAGE FOR WINTER

For storage for the winter, I build a cold storage pit—a hole dug in the ground twenty-five feet by fifty and ten feet deep. Against this soil, there was a wall built of concrete all around except a space for a door to let in or out the plants. This wall was built up to the surface of the ground and joists were thrown across every two feet. On top of this was built a green house roof—bars fastened to a ridge pole; the bars were made to hold glass on both sides with air space between. At the ends of the house was left a space for a small door to act for an entrance to the loft above, to give air and let out excess of moisture. In the bottom of this cellar was placed from two to three feet of good loamy soil, and a month before planting the soil was saturated with water, or rather a month before the danger of severe frost.

When it became dangerous to leave the plants out any longer, they were collected and planted in the soil in the aforesaid cellar, baskets and all, the same as they were outdoors. In this position again, the plants get no water until they go out next spring, the moisture in the soil being sufficient. The joists overhead in this cellar are used to run rolls of tar paper along when the temperature reaches zero outdoors. When fifteen degrees below zero outside, I had seventeen degrees of frost in the cellar. Here lies the secret to success: While the plants and soil is frozen keep them dark; as soon as the frost is gone give them the light again. I have taken such plants out in zero weather in an open wagon to decorate without any apparent harm to them.

THE BEST PLANTS

The following is a full list of the plants that may be used for a changeable garden, and will do well in such a cellar as I have just described:

Yucca gloriosa, Y. aloifolia, (variegated), *Nerium Oleander, Abelia floribunda, A. grandiflora, Thuyopsis dolobrata, T. dolobranta* var. *variegata, Hydrangea hortensis, H. h.* var. Thos. Hogg, *H. h.* var. *variegata, Elæagnus pungens* var. *maculata, E. p.* var. *variegata, E. macrophylla, Caryopteris Mastacanthus, Vitex Agnus-castus, Buxus sempervirens, B. s.* var. *pendola, B. s. aurea, B. s. aureo-marginata, B. s. argenteo-marginata, B. microphylla, Euonymus Japonicus, E. J. aureus, E. J. aureo-variegatus, E. J. macrophyllus, E. J. medio-pictus, E. J. albo-marginatus,* and *E. J. argentiuo-variegatus.*

An Uncommon Cactus

J. H. Callander, Peterboro, Ont.

Mamillaria nivea cristata is one of the rarest forms of the cactus family, seldom seen in cultivation, and highly prized by those fortunate enough to possess one. It is extremely odd in its style of growth, constantly becoming more twisted and contorted as it increases in size. In its original form it is a simple, round specimen of the pin-cushion shape, the change in character being due to the coxcomb-like growth taking place, after which it never reverts to the parent form.

It needs greenhouse or conservatory treatment, sometimes being grown under glass domes, and thriving in the limited air space thus provided. When

Mamillaria Nivea Cristata

well established it is of easy growth, and may be watered with impunity, but needs careful handling while being rooted. Its most successful treatment, however, is by grafting, when results are rapid and satisfactory.

Growing Peonies and Gladioli from Seed

W. E. Saunders, London, Ontario

ON ACCOUNT of the short period of reproduction in annuals, it is possible by selection of the seed to fix color and other variations so that they come reasonably true from seed, but with perennials the case is entirely different. A person does not want, as a rule, very many specimens of any individual species of this class and those desired can usually be obtained by splitting the original plant and one may thus procure blooming plants in a much shorter time than if they were raised from seed. Sometimes this is objectionable, as, for instance, in the case of the peonies, which are very apt to sulk if divided, unless perhaps the plant is taken up and thoroughly divided into small fractions.

PEONIES FROM SEED

If one undertakes to raise peonies from seed he is appalled by the amount of time required before bloom is obtained, but if one owns his garden and expects to remain long the very novelty of the procedure has a charm and the fact that few of the seedlings may be expected to resemble the parent very closely, adds interest to the experiment. The young plants are easily cared for, and do not take up a great deal of room and, after they have once bloomed, they may be thrown out or transplanted to permanent quarters as preferred.

This year I have flowered my first seedling peonies, one five years old and the other three. It chanced that one plant bore a very pretty flower which I was quite glad to get, but the other one has earned its discharge. I am inclined to believe that one will not, as a rule, obtain good flowers from half of his seedling peonies; but one thing the grower is nearly sure to get, and that is a good variety of single-flowered plants which are very beautiful but which are, at present, in very few gardens.

RAISING GLADIOLUS SEEDLINGS

The most interesting perennial that I have raised from seed is the gladiolus. It is popularly supposed that these take a long time to bloom, namely from three to five years, but such is not the case. In spite of the fact that I have never yet treated my seedlings as well as I thought they should have been treated, I have had quite a number of flowers the second year. To begin at the beginning, my plan of operation is as follows: First, to carefully select the parent, using only a vigorous plant with a good flower. Almost invariably I hybridize this by rubbing a stamen of some other selected variety across the pistil of the one from which I wish to raise the seed. Without this precaution the plants very often fail to produce seed and, when one goes through the hybridizing process the chance of obtaining something desirable is good.

When the seeds are nearly ripe, the stems may be picked and placed in a box with others where it will dry and the pods will open and shed their seed. The following spring these should be planted in a rather light, rich soil where there is no recently added manure whatever, as the gladiolus is well known to be intolerant of manure, even if well rotted. The seeds should be covered with one-half to one inch of earth and after that, weeding and possibly watering is all they require. They winter just as readily as the larger bulbs and under the same conditions.

When one comes to plant them the following spring there is a severe tendency to give them too little room. One hardly realizes that a bulb one-half inch in diameter is likely to flower, but even a three-eighth inch bulb will often flower if given the best conditions. It seems absurd to put these little things three inches apart. "One inch, surely, is far enough for a quarter inch bulb," says one's gardening mind, but this is not true. At this distance few of them will flower, but if planted with two or three inches between, the grower will be surprised to see how many will reward his efforts with bloom. The yearlings produce a large number of bulblets. I do not know how soon this character is lost, but I am inclined to think that it persists for some time and, by planting them, one can readily multiply any desirable form which he may have produced.

Thus in growing these bulbs from seed, one has the opportunity of extending his collection in the colors which he prefers. It happens that I want flesh and salmon tinted varieties, and these are exceedingly hard to buy, there being only two or three varieties that I know of whose colors please me, but I have raised one or two seedlings that are very handsome and I hope that I have more on the way. There seems to be little or no tendency towards depreciation in size but rather the reverse. I have seedlings which are five and one-half inches across, grown under the same conditions as Groff's "Peace," which does not reach four and one-half inches in my garden, my location being too dry and sandy to suit it very well.

There are also other plants from which the gardener may obtain a great deal of pleasure during the process of growth from seed, but it is necessary that the plant should produce variety in order to give that interest to the operation which peonies and gladioli yield.

Chrysanthemums at Ontario Agricultural College, Guelph- See next page

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It may interest the readers of THE CANADIAN HORTICULTURIST to know that in 1890 there was not a single flowering or other foreign shrub know or grown in the whole of the then three territories of Assiniboia, Saskatchewan and Alberta, while to-day we have no less than forty families, with 230 varieties, that are quite hardy or nearly so. The mountain ash, which does so well in the east, killed back to the ground for years, but to-day is one of our most beautiful flowering trees.—Angus MacKay, Indian Head.

Take an interest in our question and answer department. It will help you.

Three Essentials in Aster Growing

C. M. Bezzo, Berlin, Ontario

TO grow asters successfully, there are three things that are absolutely necessary: 1, Good, rich, mellow soil; 2, kept loose and mellow by constant cultivation; and, 3, moist by

Daybreak Asters and Dahlias
At "Flora Villa" the home of Mr. C. M. Bezzo, Berlin, Ont.

frequent waterings in dry weather. Of course we are assuming that the grower has good seed to start with.

Aster seed may be bought for two cents a packet up to twenty-five cents a packet. In the majority of cases the higher priced seed is the cheapest. But, in order that this article may not be unduly long we will confine our attention as far as possible, to the above mentioned three essentials, and deal with them in their respective order.

KIND OF SOIL

Good rich soil—by this we do not mean ground that has been heavily manured regardless of method or quality. An aster bed, to be in best condition, should be well fertilized the year previous. Soil that has been well enriched for dahlias should grow good asters the following year. But it would be advisable after the dahlias have been removed to dig in a good dressing of well rotted manure. If this is not obtainable, the bottom of the manure pile that has been accumulating since last spring will answer. Then, in the spring, as soon as the ground is dry enough to cultivate, and long before the plants are ready to plant out, it should be dug over again; dig it with a fork, and dig it well, thoroughly incorporating every particle of manure with the soil. When the time arrives for setting out the plants, dig the bed once more, this time, merely to loosen up the soil to a depth of eight or ten inches.

The next two essentials are so interwoven that they ought to be treated under the one head. As soon after each rain (or watering with the hose or watering-pot) as can be done without the soil sticking, the surface of the ground should be loosened with the hoe or small rake, to a depth of one and one half to two inches. Care should be taken, not to hoe too closely to the plant at this depth as the aster throws out roots very close to the surface of the soil. This constant loosening of the surface soil not only prevents the formation of a crust which would exclude the air and smother the roots, but by forming air spaces between the particles of earth enables them by capillary attraction to draw up, in dry weather, moisture from depths far below. It also enables the roots to strike down deeper, reducing the danger of uprooting by the wind, while cutworms, wireworms and other like enemies can find no abiding place in ground that is constantly stirred.

PLENTY OF WATER REQUIRED

Asters should never be allowed to suffer in the least from want of water. Water in the evening unless the nights are very cool, in which case, if the hose is used, the watering had better be done in the morning. But water any time, morning, noon or night, in any kind of weather, rather than have them suffer from thirst. The plants when watered, should never be merely sprinkled, but should always be thoroughly soaked.

If the plants are massed and have be-

Mikado Asters at "Flora Villa"

come so large as to render dangerous the operation of hoeing, a two inch mulch of straw, grass clippings or half rotted manure shaken up finely will be of great benefit in keeping the ground moist and cool. Water is the enemy of the red spider and the aphis. Those who use the hose liberally on the foliage, sprinkling underneath and all around, will experience very little trouble from these pests.

Chrysanthemums at Guelph

The display of Chrysanthemums at the Ontario Agricultural College, Guelph this year, probably excelled those of any previous year. This was the general consensus of opinion expressed by the hundreds of visitors who saw the collection this season. Not only was this true in regard to the quantity and quality of the blooms, but also from the fact that the collection was thoroughly typical in character, representing as it does every known type of this gorgeous autumn flower, from the smallest of the pompons to the largest of the popular incurve and loose style of Japanese blooms, in all the many sub-types and colors to be found among these popular flowers.

In this respect the educative value of the collection was a prominent feature, more particularly from the standpoint of the amateur flower-grower, the habit and type of plant as adapted for home culture in pots being a strong point considered. Quite a number of the newer varieties were tested. THE CANADIAN HORTICULTURIST is promised a few notes on these for publication in a later issue. See illustration on page 7.

Interested in Lilies?

Editor, THE CANADIAN HORTICULTURIST: I wish to know from you or any of the readers of your magazine whether the whole family of lilies is known to be hardy in the greater part of southern Ontario. Would it be safe to plant any or all of them in our autumns for spring flowering? If not, which ones are unsafe and what would be required to protect them if so planted?

How about the Japanese species, such as *Lilium auratum*, *L. Brownii*, and so forth, and the whole species known as *L. speciosum*, including *rubrum*, *Melpomene* and others, and the species *L. elegans*? If it is necessary to take them up in the fall, how best can they be protected during the winter?—B. Gott, Strathroy, Ont.

NOTE.—Readers of THE CANADIAN HORTICULTURIST are requested to give their experiences in the culture and care of lilies for publication. The lilies are amongst the noblest of garden plants. A discussion of their behaviour in Canadian gardens will be of much interest.—*Editor.*

Irrigation and Its Effect on Vegetables and Small Fruits*

W. T. Macoun, Horticulturist, Central Experimental Farm, Ottawa

THERE were few places in Canada during the growing season of 1908 where the weather was not very dry for a longer or shorter period. In some parts of the country, and particularly in eastern Ontario, the weather was too dry to obtain average returns from vegetables and small fruits from early in June until October 17th, when the drought was broken. At Ottawa the rainfall was about four inches below the average from April to October during that time. Not for many years has the need for a regular supply of moisture been so impressed upon vegetable and small fruit growers as this year, when thousands of dollars were lost to them through an insufficient supply of moisture during the growing season. In eastern Ontario the potato crop was, in places, almost a failure owing to the continued dry weather. Cabbage and celery suffered badly, the latter where it can be used at all being very short. Onions were much affected, the crop being greatly reduced, and other vegetables suffered also. Strawberries were scarcely more than half a crop, and raspberries the same. The time seems opportune, therefore, to find out whether in the province of Ontario it is likely to pay to supplement the rainfall with artificial irrigation.

The droughts in the province of Ontario are usually of short duration and in an average season rain will come before the effect of the dry weather is apparent, although the growth may have been checked, but so gradually that it is not noticed. This probably accounts for the fact that irrigation has not received much attention in this province, but if we think of the marked improvement which rapidly takes place after a rain, is it not suggestive that moisture might be given artificially a few days sooner and thus ensure a continuously rapid growth of the crop?

In arid regions, where practically no rain falls during the growing season irrigation is, of course, absolutely necessary to ensure a crop, but it is quite a different matter in Ontario, where the average rainfall is a fairly liberal one during the growing season and where the number of times during the season when it is desirable to irrigate is limited, and where in some seasons it may not be necessary to irrigate at all. Such conditions would not apparently be conducive to the establishment of expensive irrigation plants which in some seasons might be altogether idle. The point to consider, therefore, is how can the vegetable and small fruit growers maintain a sufficient supply of moisture, available to the growing plants, to ensure maximum crops each year?

The soil must, first of all, be in the best possible condition to retain what moisture falls as rain during the growing season and to conserve the ground water. If the surface soil be shallow with a hard sub-soil, moisture which comes in the form of rain will not sink fast enough and it may be evaporated again in a short time. The ground water also will be evaporated quicker than if the subsoil were broken up, thus lowering the water table and also permitting the rain water to go down to a reasonable depth. Good tillage and good drainage also will ensure the quick disappearance of surface water. Thorough cultivation is essential, both for the conservation of moisture and the aeration of the soil. But it is scarcely necessary to bring these facts before vegetable growers who practise such intense methods that they could not obtain the crops they do unless their soil were worked to a good depth and the surface soil kept loose. Notwithstanding the intensive cultivation practised by vegetable and small fruit growers, their soils do become too dry at certain times, some soils becoming drier than others.

Vegetables and small fruits may be injured by too much moisture, the crop suffering both from the direct effect of the excess of moisture and from the increase of disease favored by moist conditions, some kinds of vegetables suffering more than others, just as certain kinds suffer in dry weather more than others.

In the province of Ontario water may be obtained for irrigation purposes from streams, surface and artesian wells and from ponds and reservoirs constructed for holding the rainwater. Sometimes it may be possible to obtain water from the city or town supply. Water may be pumped either by a gasoline, electric or steam engine, by wind power, or by horse power.

There are several methods of applying water to the growing crop, and we cannot do better than quote from Bulletin 87 of the Office of Experiment Stations, Washington, D. C., on "Irrigation in New Jersey," for descriptions of methods used there, where there has been some attention to irrigation:

FURROW IRRIGATION

"Irrigation by furrows consists simply in allowing water to flow between rows when the plants are large enough to fill the ground with roots, or in making a furrow in which to run the water next the row on one or both sides of small plants. Furrow irrigation has been most successful on potatoes where there was just enough slope to make the water flow slowly when a large volume is started down the row. With greater slopes irrigation washes the soil in proportion to the steepness of the slope.

A Movable Sprinkler for Irrigating Vegetables

"When the ground has too little slope to make the water flow well, several lengths of tarred hose may be laid down the row, and when the water has flowed nearly the length of the first piece a connection is made and the water let out at the end of the first length, and so on. This plan should be followed when the row is so long that the upper end gets too wet before the lower gets wet enough.

"Where the land slopes so much that a large volume of water washes the land, the difficulty can be partially overcome by dividing the water into small streams and running it down several rows at once. This is done by making small ditches or furrows with the hoe to carry the stream to the different rows, or it may be done with a distributor. A small hose is attached to the openings and carries the water to the row desired. With these pieces of small hose, about twenty-five feet long, there is no need to change the position of the distribu-

*A portion of a paper read at the last convention of the Ontario Vegetable Growers' Association. The construction of irrigation plants will be dealt with in the next issue.

tor until a space fifty feet wide has been watered. The distributor is made of tin or sheet iron.

"Where there is a long, gentle slope, the lower end of the land is often more moist than the upper end, although rows of potatoes 500 feet long have been successfully irrigated by starting the water at the upper end of the row and allowing it to flow the entire distance.

"In connection with furrow irrigation, the question naturally arises, 'How far does the water soak laterally?' When potatoes are ridged and the water runs between the rows, there will be lateral soakage enough in sandy soil to make the soil under the potato row quite moist.

FLOODING SMALL BEDS

"Small beds of plants often need careful and thorough watering. It is quite commonly supposed that sprinkling is the only available method in this case. Two methods of flooding were tried on beds of cabbage plants. In one case, the bed was plowed so as to slope towards the dead furrow in the middle. Small furrows were then made along the two edges of the bed with a hand plow. Water was run down the two small furrows, and made to overflow by damming with a board at short intervals. Water was also run down the centre furrow and allowed to overflow, but this was not very effective.

"In another case the bed was plowed so as to leave the whole a slight ridge. A furrow was made with the hand plow down the centre of this ridge, and water ran down and was allowed to overflow on one side only (at a time). Both of these methods were found to be very satisfactory. When the plants were of considerable size, the ground was thoroughly wet without wetting the leaves. It worked better after the first irrigation, or after the freshly plowed ground had been rained on. One irrigation was performed on the freshly made bed, and although it was successful, considerable trouble was caused by the washing away of the bank of the small ditch.

"Mr. John Repp, of Glassboro, N. J., irrigates three acres of field lettuce when small by means of movable sprinklers attached to rubber hose. When the lettuce is large he floods the ground by letting the water flow out of the open ends of hose, moving the hose from place to place. He considers the method very satisfactory." Another method is to have overhead sprinklers.

TIME TO APPLY WATER

The time to apply water will of course depend on the weather, but the judgment of the grower is also an important factor. In the dry districts, the plan is to thoroughly soak the ground at fairly long intervals, then follow with good cultivation. In Ontario, where there is usually a fair supply of rain during the growing season, it will probably be found better to irrigate oftener and not quite so thoroughly, as, if a heavy rain followed a soaking from irrigation, more harm than good might be done. The judgment of each individual grower will have to be used also as to the amount of extra water it is desirable to apply, the character of the soil and subsoil and the slope of the ground being important factors in determining the amount of water that the land requires to give the best results.

Foes of Vegetable Crops*

T. D. Jarvis, Ontario Agricultural College, Guelph

THE annual losses due to insect and fungus attacks on vegetable crops is estimated at thirty-three per cent. It is important, therefore, that the progressive vegetable grower be well equipped with a knowledge of insects and fungous diseases. "Insects Injurious to Vegetables," by F. H. Chittenden, Sc. D., United States Department of Agriculture; "Insect Life," by J. H. Comstock, of Cornell University; and "Plant Diseases," by George Massee, are recommended for the vegetable grower.

The more general observance of certain farming methods, such as involve no extra outlay for machinery or insecticides but require modification of ordinary farm practices will greatly lessen the losses from this source. They are the most advisable methods of dealing with crops of low value, such as turnips, cabbage and other vegetables which would not justify greater expense. Clean culture includes the destruction of weeds, especially those of same natural family with crop, for example, lamb's quarters, spinach and beets.

DESTRUCTION OF RUBBISH

Many insects hibernate under trash, boards, chips, and so forth. Cutworms, army worms, squash-bugs and other pests pass the winter in such places. Fence corners harbor many like insects and also grasshoppers in young stages. The cleaning out of such places, burning trash, and so forth, during winter will aid. Even the whitewashing of board fences is an aid in sealing up the corners and cracks where flea-beetles, and some others, hide.

DESTRUCTION OF REMNANTS

Remnants should be destroyed, preferably by burning, as soon as the crop is gathered. Many insects multiply or pass the winter on or in the remnants of crops, as worms and aphids on cabbage and cauliflower remnants, cutworms and flea-beetles on tobacco, stalk weevils on potato vines, squash borers in squash vines, and so forth. All these may be checked by promptly burning or putting in compost heaps all such remnants as soon as the crop is gathered.

Rotations are good for the land, for crops, and deter insects. Crops of same nature should not follow each other when attacked by insects or fungous diseases; for instance, when crops like potatoes, tomatoes and tobacco, follow one another, flea-beetles, tomato worms, potato beetles and various blight diseases thrive, but if the land is rotated with corn, onions, and so on, alternating with other crops, much injury will be averted.

Plowing at certain times often checks insects, especially underground species, by exposing to cold and weather, or by starving through destruction of natural food. Wireworms, cutworms and white grubs may be checked in this way. Fall plowing is usually best for this purpose.

Fertilizers stimulate the plant to resist insect and fungus attack.

SPRAYING

Vegetable growers should be provided with a complete outfit for spraying operations and should keep on hand or know where to obtain at short distance a good supply of necessary insecticides. Arsenate of lead is coming into use in place of Paris green. It may be had in paste or powder form and used in water or Bordeaux mixture at from two to four pounds to fifty gallons. It adheres to leaves well and is not likely to burn. The mixture is said to remain in suspension fifteen times as long as Paris green. It may be purchased from the St. Catharines Cold Storage and Forwarding Company, from the Spramotor Company, London, or the chemicals may be obtained from druggists and the preparation made at home.

The chemical department at the Ontario Agricultural College, recommends for home use: Arsenate of soda, ten ounces; acetate of lead, twenty-four ounces; water, 150 to 200 gallons. The arsenate of soda and the acetate of lead (sugar of lead) should be dissolved separately and then poured into a tank containing the required amount of water. A white precipitate of lead arsenate is immediately formed and, when thoroughly stirred, is ready for spraying.

In a recent bulletin published by the experiment station at Cornell University, a formula is given for an adhesive fungicide which is not washed off by rains: Resin, two pounds; sal-soda crystals,

*A paper read at the last convention of the Ontario Vegetable Growers' Association. It will be concluded in next issue.

one pound; water, one gallon. Boil the mixture until you get a clean brown color which usually takes about an hour and a half. For onions, asparagus, cabbage and salsify, add forty gallons of Bordeaux to mixture, and for other plants eighty gallons of Bordeaux to the mixture.

Insects with sucking mouth parts, such as aphids and leaf hoppers are killed by contact poisons. One of the simplest and most effective remedies consists of a mixture of soap and water. Shave soap in thin pieces in water and boil to dissolve.

QUESTION AND ANSWER DEPARTMENT

A Peculiar Effect

I am sending an apple that is peculiarly marked. About one-sixth of its skin is totally different in color to the normal and the marking is well defined from base to apex. How do you account for it?—R. D., Middlesex Co., Ont.

The apple shows the effect of what is known as "superfoetation," or the immediate effect of pollination. It is rather unusual to see apples marked in this way, but they are found occasionally. It is supposed to be caused by the influence of the male parent being made evident during the season of pollination, when as a rule the influence is not sufficiently marked to be seen until the seedlings fruit.

Dracæna Indivisa

Give proper winter treatment of *Dracæna indivisa* that was used in a hanging pot last summer and fall.—S. R., Huron Co., Ont.

The proper treatment for *Dracæna indivisa* would be to put it into good soil—one part sand, one part leaf soil, six or eight parts of a rich loamy soil—and plenty of drainage. Keep the plant in a temperature of sixty to seventy degrees, and in not too sunny a position in the window. Sponge or sprinkle the leaves with clear water about once a week.

Echeverias

1. What varieties of Echeveria are the most suitable for carpet bedding? 2. What is the proper time to sow seed of Echeveria for bedding purposes in June, 1909?—P. M., Wentworth Co., Ont.

1. The varieties of Echeveria (Cotyledon) best suited for carpet bedding are *E. metallica*, *E. secunda*, *E. atropurpurea* and *E. secunda* var. *glauca*. These are tender plants and must be kept in a rather cool temperature in winter, forty-five to fifty degrees. The house leeks (*Sempervivum spp.*), similar plants to the Echeverias, many varieties of which are quite hardy, are also suitable for carpet bedding, but are not quite so showy in appearance.

2. To secure good large effective plants of Echeveria from seed for bedding out in 1909, the seed should have been sown during the past summer. By sowing in January or February, small plants can be obtained, but the time is too short to secure large plants. These plants are usually propagated from the terminal growth or from the young growth on the old stems, or from the leaves. They are seldom grown from seed. The Echeverias named like a rather sandy soil and should be kept moderately dry, not over watered, especially in winter.—Wm. Hunt, Ontario Agricultural College.

Propagating Alternanthera

How are alternantheras propagated, and when is the best time?—R. T., Lanark Co., Ont.

Alternantheras are propagated from cuttings or divisions of roots. Cuttings can be stuck in sand in March or April in a hotbed or greenhouse, temperature seventy to eighty degrees, or old plants can be cut back and the roots divided into small sections at the same time as cuttings, potted in small pots in sandy soil and grown in a hotbed. When quite small they should be shaded from very hot sun.

Maidenhair Ferns

How can maidenhair ferns best be propagated?—C. A., Haldimand Co., Ont.

Maidenhair ferns can be propagated from spores or by dividing the roots. Florists usually propagate from spores or seed. But without the aid of a greenhouse, it would be better to divide the roots. Ferns like a light soil, plenty of drainage and partial shade at all times. —Wm. Hunt, Ontario Agricultural College.

Wintering Geraniums

Would you tell me the best way to save old geraniums after taken up. Some say to hang them up and others say to put in earth.—O. L. B., Lincoln Co., Ont.

The surest method of wintering old geranium plants is to cut the tops back well and pot the plants in sand or sandy soil, or if you have many of them, the roots could be put rather thickly in a shallow box about four inches deep with small holes through the bottom for drainage. The pots or boxes could then be stood in the window or placed in a basement or a cellar at a temperature of forty-five or fifty degrees, and the sand or sandy soil kept moderately moist. They could be potted later into better soil if started in the window. If kept in the cellar they should be brought up in March or April and when started pot into small pots. Hanging the plants up in the cellar is a very uncertain method of saving them.—Wm. Hunt, Ontario Agricultural College.

Dutchman's Pipe

Would *Aristolochia sipho* thrive and flourish planted along a porch on the north side of a residence?—C. A., Haldimand Co., Ont.

The Dutchman's Pipe (*Aristolochia sipho*) would compare as well on the north side of a building as in any other aspect, providing soil and other conditions are favorable. This plant is quite hardy in the neighborhood of Hamilton. I have sometimes found it advisable in very exposed positions to take it down from the trellis and lay it close to the ground during winter.—Wm. Hunt, Ontario Agricultural College.

Treatment of Cannas

After the first slight frost I lifted my cannas and planted them under a bench in my greenhouse and cut off the frosted leaves. In a short time, a fungus, similar to the damping-off fungus, grew on the cut surfaces. I sprinkled sulphur over these growths and it stopped them, but I am at a loss as to how to keep them through the winter. Will it be all right to lift them and store them when dried in a frost-proof cellar??—C. R. R., Peel Co., Ont.

The canna roots should have been dried in a room free from frost before putting them under the greenhouse bench. They should not have been planted at all. Dig the plants up and place them in shallow boxes and dry the roots as stated. Keep them in a temperature from forty-five to fifty degrees, not lower than forty degrees at least. A lower temperature is dangerous. If kept in a dry place, a little sand may be sprinkled over the roots.

Two or three questions and communications, unsigned, have been received recently by THE CANADIAN HORTICULTURIST. Always give name and address.

THE CANADIAN HORTICULTURIST would like to hear from peach growers who have been trying new varieties. Tell what they have done and their probable value for planting.

The Canadian Horticulturist

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PETERBORO AND TORONTO

The Only Horticultural Magazine in the Dominion

OFFICIAL ORGAN OF BRITISH COLUMBIA, ONTARIO, QUEBEC, NEW BRUNSWICK AND PRINCE EDWARD ISLAND FRUIT GROWERS' ASSOCIATIONS

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CIRCULATION STATEMENT

Since the subscription price of The Canadian Horticulturist was reduced from $1.00 to 60 cents a year, the circulation has grown rapidly. The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with Dec., 1907. The figures given are exclusive of samples and spoiled copies, and of papers sent to advertisers. Some months, including the sample copies, from 10,000 to 12,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruit, flowers or vegetables.

Circulation Statement

January, 1907	4,947	January, 1908	7,650
February, 1907	5,520	February, 1908	7,824
March, 1907	6,380	March, 1908	8,056
April, 1907	6,460	April, 1908	8,250
May, 1907	6,620	May, 1908	8,573
June, 1907	6,780	June, 1908	8,840
July, 1907	6,920	July, 1908	9,015
August, 1907	6,840	August, 1908	9 070
September, 1907	7,080	September, 1908	9,121
October, 1907	7,210	October, 1908	9,215
November, 1907	7,257	November, 1908	9,323
December, 1907	7,500	December, 1908	9,400
Total for the year,	79,525	Total for the year,	104,337

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(Increased circulation in one year over 2,000)

Sworn detailed statements will be mailed upon application.

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EDITORIAL

NAME ACCORDING TO SEX

New creations in fruit varieties should be named in accordance with sex. Many varieties of fruits produce blossoms that are more or less distinct in sexual characteristics. This is particularly true of strawberries. It has been the custom to name new varieties of these before the sex of the blossoms is determined. In many cases, this has resulted in somewhat ludicrous appellations and, to the un-informed, in confusion. Varieties that are bi-sexual in flower should be given masculine names and those that are pistillate, feminine names.

In strawberry plants, there are two types of blossoms, bi-sexual and pistillate. Bi-sexual varieties bear flowers that contain both stamens (male) and pistils (female). These varieties are also called hermaphrodite, perfect, staminate or male. The term staminate or male is not quite correct as the flowers contain both male and female elements. Some of these varieties differ widely in the number and strength of their male organs, the stamens. All of them, however, will bear fruit when planted alone. Pistillate varieties bear flowers that contain pistils only. They are referred to sometimes as imperfect or female. Occasionally pistillate varieties are found to bear a few stamens, but not enough to make it safe to plant the variety alone. The blossoms of all pistillate varieties must be fertilized with pollen from bi-sexual varieties. In our remarks, we shall deal with the two types broadly as bi-sexual and pistillate.

When strawberry plants bloom it is an easy matter to determine this difference in sex. It should be just as easy to determine the sex of known varieties by their names. Of the hundreds of varieties that have been originated or discovered and cultivated in our gardens, many have been given names that are directly opposed to sex and some have names that are neutral. We have bi-sexual or male varieties that have names such as Lady Thompson, Lady Garrison, Annie Lawrie, Empress, Malinda, Margaret and Ella, and pistillate or female varieties named Minute Man, Oom Paul, President and Longfellow. One of the most glaring examples of this point is found in the cases of Mark Hanna, which is pistillate, and Mrs.Mark Hanna,which is bi-sexual. Among the "neuter" names might be mentioned Clyde and Excelsior, bi-sexual, and Crescent and Kansas, pistillate. Scores of similar discrepancies in strawberries could be mentioned. They are to be found, also, in grapes and in all classes of fruits that have sexual differences in their blossoms. On the other hand, many instances of proper naming in this respect can be cited, such as, in bi-sexuals, August Luther, Senator Dunlop, Wm. Belt, Van Deman and Williams, and, in pistillates, Margaret, Mary, Carrie, Nellie Hubach and Kittie Rice.

While it would not be practicable to alter the names of existing varieties, it would seem reasonable to suggest that the names of all new varieties be left in abeyance until the sex of their blossoms is determined and then, if they are worthy of propagation, apply names that in themselves will tell definitely the sex. This is a decade of plant breeding effort and the start only has been made. Varieties are increasing rapidly. We would suggest that new creations in varieties with bi-sexual flowers be given male names and pistillate ones, female names. As the tendency of strawberry growers appears to favor the planting of bi-sexual varieties and as in consequence, these will predominate, even "neuter" names could be given to this class—provided that pistillate sorts are given names that are distinctly female. It would mean much to the plant breeders and growers of the future.

QUEEN VICTORIA PARK

The incompetence of the present management of Queen Victoria Park at Niagara Falls, Ont., has already been noted. Not one of the men who now hold important positions at the park were appointed with due regard being given to their qualifications as gardeners and horticulturists. Not one of them can be considered an authority on horticulture. Furthermore, there are too many "bosses" there. There is reason to believe that some positions have been created to furnish situations for party-heelers.

There is little or no need for an assistant-superintendent. The present holder of this office was a farmer and later a wine merchant, who ran for the local legislature and was defeated. The chief gardener scarcely knows the first principles of plant life. A number of other examples could be cited.

There is need for an improvement in the personnel of the park officials and "bosses." The rapid deterioration that has taken place in the appearance and character of the park in general and of many plants, trees and shrubs in particular, proves the necessity. Unless a change occurs, the park will soon become commonplace. Now that its attention has been called to the matter, the horticulturists of the province will expect the Government of Ontario to see that the management of the park is placed in competent hands.

A BIOLOGICAL DIVISION NEEDED

There should be a re-adjustment of the work in biological science at Ottawa. The regrettable death of Dr. James Fletcher, who labored faithfully for the agriculturists and horticulturists of the Dominion, makes a change possible. For years the work in economic entomology and botany has been conducted, for the most part, on a propaganda basis. The propagation and dissemination of principals and knowledge regarding insects and plants is a primary necessity. It was ably performed by Dr. Fletcher and his associates at the Central Experimental Farm. Not only should this work be continued, but the time has come for an advance. The needs of the country demand more work in original investigation.

The fruit and seed divisions of the Dominion Department of Agriculture need the assistance of a botanist and entomologist. While these divisions and others always have worked in harmony with the Central Experimental Farm, they have no legal right to call upon the farm for assistance. There should be an expert biologist in the department. With a staff of assistants, he could lend the necessary aid to other divisions. The present known information about insects, plant diseases and plants could be spread as formerly. In addition, the biological problems of the country could be investigated by studying the life histories and characteristics of obscure and new forms of animal and plant life and by discovering new methods of controlling those that have to do with the agricultural interests of the Dominion.

In the United States Department of Agriculture, there are scores of experts who devote all their attention to investigation in these branches of science. They have saved millions of dollars to the agricultur-

ists of that country. The time is opportune for undertaking similar work in the Dominion Department of Agriculture. At the start it would be necessary to establish only one division, to include botany, plant pathology and entomology. It could be called the "Biological Division." Its establishment would necessitate a re-distribution of the work. In addition to his other duties, Dr. Fletcher spent much time on weeds and weed seeds. We would suggest that this phase of the work be transferred to the seed division for a while. For some years, Mr. W. T. Macoun, the horticulturist at the Central Experimental Farm, looked after the work in plant pathology. As the strictly horticultural interests of the country are sufficient for one man's endeavor, the investigation work in fungi, at least, should be incorporated in the work of the suggested biological division. There are other subdivisions that could be made in the interests of agricultural and horticultural progress. It would seem that the extension and increase of the work in biology at Ottawa would warrant the establishment of a general division of biology in connection with the Department of Agriculture and that this line of work should be transferred from the Central Experimental Farm to the proposed division.

GRANT SHOULD BE INCREASED

The president of the American Civic Improvement Association, Mr. J. Horace McFarlane, who is one of the best known horticultural authorities on the continent, and who is in close touch with the work that is being done in the various states of the American Union, is authority for the statement that Ontario has the best law relating to horticulture that exists on the continent. Under this law, the membership of the horticultural societies of Ontario, during 1908, increased by about fifty per cent. There are now live horticultural societies in important centres all over the province. These societies are doing a vast work for the improvement of home and public grounds and buildings, and are interesting thousands of people in the growing of fruit, flowers and vegetables.

These societies have reached the stage where, unless their grant is to be materially increased, their work and growth will be seriously retarded. The great increase that has taken place in their membership, is the best indication of the value of the work that they are doing. The societies have decided to ask Hon. Mr. Duff, the Minister of Agriculture for Ontario, for an increase in their grant of from $8,000 to $10,000 a year. Hon. Mr. Duff has had an opportunity of acquainting himself with the work being done by the societies and, for that reason, the officers of the horticultural societies throughout the province, are confidently expecting that their request will be granted.

Horticulturists should take advantage of the short courses in horticulture that are offered each year by the agricultural colleges at Guelph, Ont., Ste. Anne de Bellevue, Que., and Truro, N. S. These courses are held for two weeks in January, and are exceedingly practical. There is no expense other than railway fares and board. It will be worth your while to attend the one that is nearest your locality.

We congratulate *The Farmer's Advocate* on the excellence of its Christmas number for 1908. It is an achievement worthy of the publishers. Handsomely illustrated, pleasing in variety of topics and typographically complete, it is a credit to Canadian agricultural journalism.

Quebec Pomological Meeting

AN enthusiastic convention of the Pomological and Fruit Growing Society of the Province of Quebec was held on Dec. 2 and 3 at Macdonald College. Delegates and friends were present from all parts of the province and some from Ontario. Some valuable papers were read and discussed. The president, Mr. R. Brodie, of Westmount occupied the chair. His opening address will be published separately. The election of officers for 1909 resulted as follows: President, Prof.G. Reynaud, La Trappe; vice-president, Prof. W. S. Blair, Macdonald College; secretary-treasurer, Peter Reid, Chateauguay Basin; district directors, 1, G. B. Edwards, Covey Hill; 2, E. Buzzel, Abbotsford; 3, G. P. Hitchcock, Massawippi; 4, A. D. Verreault, Village des Aulnaies; 5, Auguste Dupuis, Village des Aulnaies; 6, C. P. Newman, Lachine Locks; 7, Dr. W. Grignon, Ste. Adele; 8, H. W. Thompson, Hudson; 9, N. E. Jack, Chateauguay Basin.

President R. Brodie, 1908

An expression of condolence in regard to the passing-away of Dr. Jas. Fletcher was unanimously passed. A resolution was passed thanking Dr. Jas. W. Robertson, of Macdonald College, and his staff for their hearty co-operation in making the meeting a success. It was moved also and passed that, "Whereas this society appreciates the good work that was done at the Dominion Fruit Conference held in March, 1906, and realizes the rapid development that is taking place in the fruit industry of all Canada, and feels that there are yet many problems that require national consideration and discussion to bring about their solutions, be it resolved that this society ask the Dominion Department of Agriculture to hold another conference during the coming winter and that a copy of this resolution be awarded to the Hon. Sydney Fisher, Minister of Agriculture."

THE FRUIT EXHIBIT

The fruit display was the best that has ever been held by the society. With a few exceptions, the quality of the apples was excellent and showed that the province of Quebec can produce some varieties that are equal to and probably surpass similar ones grown in any other part of the Dominion.

The competition in the class that called for best collections of fruits, brought out a fine lot of apples. The first prize was won by A. A. Johnston, Cowansville; second, R. W. Shepherd, Montreal; third, A. Lalonde, Isle Perrot. About 25 seedling varieties of apples were shown in competition. Many of these were fairly good, two in particular being very promising.

Secretary Peter Reid

For the best winter seedling, Peter Reid secured first prize; A. A. Johnston, second, and C. P. Newman, third. For the best 12 commercial varieties and for six best export varieties, A. A. Johnston won first, Mr. R. W. Shepherd, winning second in the latter class. Mr. R. Brodie, Westmount, won first for the best barrel of apples. For the best box, first went to Chas. Fisk, Abbotsford, second to R. Brodie and third to A. Lalonde. The successful exhibitors in the plate sections were, A. A. Johnston, R. Jack & Son, P. Reid, Chas. Fisk, R. W. Shepherd, A. Lalonde, C. P. Newman, W. L. Davidson and T. A. Bishop. Mr. W. T. Macoun and J. M. Fisk acted as judges. Mr. Macoun also exhibited a large number of fruits originated in Canada and grown in the orchards of the Central Experimental Farm.

CULTIVATION OF ORCHARDS

"The cultivation of orchards in Quebec and Eastern Ontario," was the subject of a practical address by Mr. Harold Jones of Maitland, Ont. The speaker stated that in most sections of the country cultivated orchards are the most profitable. That is the verdict of fruit buyers. Orchards in sod do not bear as much fruit as those under cultivation but they suffer less from injury from cold and freezing. Mr. Jones referred to the methods adopted in his own orchards. He cultivates in spring and early summer and sows a cover crop of red clover or oats about the first of June. During the summer months, these crops do not take as much moisture from the soil as the sun and wind would were the ground left bare. When oats are sown, they are kept cut constantly so as to keep the growth green all the season. In respect to the causes of root-killing, Mr. Jones stated his theory to be that the cambium layer of the wood or the growing tissue is squeezed by the action of frost in the ground. He believed that injury is not caused directly by freezing. If this squeezing is caused three times by alternate thawing and freezing, the roots become killed.

Vice-Pres. W. S. Blair

"There are not enough young orchards set out," remarked Mr. Jones. "More of them should be found on our farms. The difficulty is that most men think that it takes too long to wait for a crop. Prepare the ground the fall before as for potatoes and have it well manured. The following spring, set out the trees and plant potatoes between them. Dig the potatoes in October. This will prevent danger of starting late growth, which happens sometimes when the inter-crop is disturbed late in season. In place of growing a cover crop, apply manure at the rate of one load to eight or ten trees." The following year Mr. Jones plows his orchard in spring, levels and plants a low-growing variety of corn. He cultivates to the first of July and then sows between the corn rows 10 or 12 pounds of red clover seed an acre. The third year, the clover is cut early and the after-growth is allowed to stand. The fourth year, the sod is plowed down and the soil cultivated. The rotation is then repeated.

An interesting discussion followed Mr. Jones' paper, during which, Mr. W. T. Macoun, horticulturist of the Central Experimental Farm, Ottawa, said that the most important thing in respect to winter-killing is to have the wood of the trees perfectly ripened in autumn. When this is done, they usually come through all right. "On account of the dry summer of 1908," said Mr. Macoun, "there is not enough

moisture in the trees and there may be some loss this winter. Trees must not go into winter too dry. Root-killing occurs most often in dry soils and is due also to low temperatures." Mr. N. E. Jack, of Chateauguay Basin pointed out that air drainage has something to do with root-killing. Trees in valleys and low places will kill first. Respecting sod vs. clean cultivation, Mr. C. P. Newman of Lachine Locks, said that the color of Fameuse, McIntosh, Wealthy and Alexander is much injured by cultivation. As these varieties are sold largely on the value of their color, it is better to grow them in sod, or at least some compromising system of culture.

SOME NEWER PRACTICES

An interesting discussion on "Some of the Newer Practices in Pomology" was introduced by Mr. N. E. Jack. He advised growers to keep up-to-date in all orchard operations. Mr. Harold Jones touched on co-operation. He said that this system of growing and handling fruits attracts buyers because they can get what they want. It widens the market. It brings higher prices because complete cars can be filled at one time with the stock that buyers want. It economizes in the buying of material for spraying, marketing and so forth. Most important is its influence in improving the pack. Growers that pack co-operatively can pack more uniformly.

"Boxes vs. Barrels," was discussed by Mr. E. H. Wartman, Dominion Fruit Inspector, Montreal, who said that ten per cent. of the export fruit in barrels that left Montreal and Quebec was slack. As 60,000 barrels went forward, this means, estimating a loss of $1 a barrel, $6,000. Barrels are heavy to handle. They are too big for stevedors to carry carefully. As a result, they receive ill-usuage. Boxes are more easily handled. They are the best for the highest grades.

GRAFTING

In a short talk on grafting, Mr. Macoun said that the scion and stock when grafted constitute merely a mechanical union, not an organic one. Sometimes the top will outgrow the stock because not enough sap is supplied. The peculiarity of the stock always remains. There is individuality in trees as there is in animals. Each bud on the tree is really an individual. Top-grafting increases fruitfulness. It may not increase the total amount but it will make the scions earlier in fruiting.

An illustration of individuality in trees was given by Mr. Macoun, who referred to two trees of McIntosh growing in the same orchard. A record for ten years showed that one of them gave in that time 485 gallons of fruit and the other 197½ gallons, making a difference of 287½ gallons. One tree was therefore, two and a half times better than the other. In ten years, the difference amounted to 12 barrels, which, at $2 a barrel, means $24 or a difference of $2.40 in one year. Estimating 40 trees to the acre, this would mean a difference of $96 a year per acre. Many similar cases were cited.

The crab was recommended as a stock on account of its hardiness. Prof. W. S. Blair of Macdonald College said that crab stock varies; the Martha is a strong grower and makes a good stock. Prof. G. Reynaud of La Trappe said that he has had good success in grafting Spy on Transcendent crab. Mr. J. M. Fisk of Abbotsford stated that he has abandoned the crab as a stock on account of its propensity to suckering. Mr. Clark of Massiwippi, cited cases of Spy and Newtown Pippin on Duchess stock which came through a hard winter all right, while those grafted on Longfield killed back. Mr. Macoun pointed out that there is no influence exerted by the stock on the hardiness of the scion. Spys have killed down to the union.

PLANT BREEDING

A valuable paper on "The Principles of Plant Breeding," was contributed by Prof. Wm. Lochhead of Macdonald College. This will be published in full in a latter issue of THE CANADIAN HORTICULTURIST.

Mr. W. T. Macoun, contributed a paper on "Some Results in Plant Breeding," in which he doubted if our fruits in the wild state have made any improvement from an economic standpoint during the last 4,000 or 5,000 years; they might have made some. But when we consider the tremendous development that has taken place in the strawberry since we got the Wilson seedling as a cultivated variety, about 40 or 50 years ago, the improvement is something wonderful. This shows that once a plant is brought under cultivation the advance is very rapid.

The art of cross-breeding was known in the 18th century, but it is only within the last half century that much progress has been made in breeding fruits by this method. Most of the tree fruits in commerce have originated as chance seedlings, or as seedlings with only one parent known. This was not the fault of the method of artificial cross-breeding, but because until recently few men could or would devote the time and the land necessary for the work. With bush fruits and vines it has been different, as less time is needed to bring them to fruition; and with ornamental shrubs, annuals and herbaceous perennials the advances from cross-breeding had been very marked.

The increase in population in cities demanding more food and the increase in competition resulting therefrom, made the desire for better fruit imperative. After a time the government took up the work, and in the last 50 or 60 years it has undertaken to provide the means for carrying on the work, and within that time some of the greatest results have been obtained, some of them by private individuals. More has been done, however, in the production of new varieties of flowers than of fruit. Florists have appreciated the great importance of getting new varieties for commerce, and as they were able to produce flowers in shorter time than shrubs and fruits, they went to work and obtained improvement in orchids, gladioli, cannas, begonias, phlox, roses, deutzias, lilacs, and so forth.

Mr. Macoun referred to some of the Canadians and others who have been prominent in plant breeding—Dr. Wm. Saunders, who began working in 1868 on the gooseberry, red and white currant, raspberry, blackberry, grape and apple, as well as several species of flowers; Charles Arnold, Paris, Ont.; P. C. Dempsey, Cobourg, Ont.; W. H. Mills, Hamilton, Ont.; Wm. Hoskins, Hamilton, Ont.; James Dougall, Windsor, Ont.; E. S. Rogers, Roxbury, Mass.; T. O. Munson, Denison, Texas, and Ephraim W. Bull, Concord, Mass. He touched, also, on some of the men who had been prominent in flower breeding—Lemoine, Eckford, Crozy, Groff, Dickson, and Ward. We have heard much, he said, of Mr. Burbank's work, but he did not think that it compared in value with the work of those he had mentioned. Burbank's results have been largely confined to the western parts of America. Practically none of his introductions have had a large reputation, so that, although we have heard a great deal about him, we should always remember that there are other men who had done more for plant breeding from an economic standpoint than Burbank has up to the present.

A Part of the Quebec Pomological Society's Fruit Exhibit

Mr. Macoun called attention to the work which had been done at the Central Experimental Farm, under the direction of Dr. Saunders, and concluded by saying that he was a great believer in plant breeding. He was of the opinion that they would in time get apples which would cover the season in this part of Canada and in others, apples of the finest quality and of the highest color. That is what they are working for at the farm.

In a discussion that followed Mr. Macoun's paper, Mr. A. B. Cutting of THE CANADIAN HORTICULTURIST suggested that new varieties of fruits that are more or less distinct in sexual characteristics be given names that coincide with sex. He pointed out that many varieties of strawberries in particular have been wrongly named in this respect and that it would be better to give bi-sexual or male varieties, male names, and pistillate or female varieties, female names. This point is referred to at greater

length in the editorial columns of this issue of THE CANADIAN HORTICULTURIST.

A BUSY MAN'S GARDEN

A talk on "A Busy Man's Garden," was given by Mr. R. B. Whyte, Ottawa, who remarked that a garden was a part of the home and, therefore, should be so arranged in summer that the owner could live for a large part of the time out-of-doors. Consequently, a certain amount of privacy was needed. It should not be open to the public. It should be a place where a person could grow that in which he was most interested. Some grow vegetables, others fruit and others flowers. To be complete, more or less of the three should be included.

How can a garden be made to fill these conditions? In the first place, a point very much overlooked was that of having wide, roomy paths, which must be soft to the feet and dry, clean, and easily kept clean, Secondly, there must be pleasant resting places here and there. It is important to have summer-houses in suitable and proper places, where a person could sit down and read, or pass the time in any way he wished. Thirdly, time being limited, it is important to have labor-saving tools and to always have them sharp and ready for use. The things worth growing in such a garden are the best of vegetables and fruits, but it does not pay to grow turnips or potatoes.

The great interest of the garden is the flower department. Grow such flowers as will give a continuity of bloom all summer and up to the time of frost. They should be grown in masses, as this gives an idea of the mass of color and beauty. They should be grown for quantity, garden decoration and cutting. For best results spring and summer bulbs are required, also bedding plants, annuals, perennials and climbers. For early flowers, Dutch bulbs are necessary. In May the first perennials come into bloom, and June, which is the great flower month, is the month for the iris, rose and peony; in this month, too, the first annuals come.

"One of the great problems in a garden," remarked Mr. Whyte, "is to have no waste ground; things should be coming up all the time." He spoke of the pleasure he experienced when in England last spring in visiting some peony gardens and seeing the wonderful improvement that had taken place in the last two or three years in the size and color of peonies. He said that 25 years from now everybody would be growing peonies.

MISCELLANEOUS

A valuable paper on "Young Trees vs. Old Trees," was read by Prof. G. Reynaud. It is published in full on page 3 of this issue. An address on "The Antiquity of Certain of Our Cultivated Fruits," was given by Prof. F. C. Harrison, of Macdonald College. "Insectivorous Birds," was dealt with by Dr. John Brittain, of Macdonald College. "From the Garden of Eden to the Gardens of St. Anne's," was the subject of a pleasing address by Dr. J. W. Robertson. These will be referred to at greater length in subsequent issues. Those present at the convention expressed themselves highly pleased with the success of the meetings and with the reception afforded them by the staff of the college.

An index to Volume XXXI of THE CANADIAN HORTICULTURIST has been prepared. Copies will be sent to all readers that request them.

There is money for you in securing new subscriptions for THE CANADIAN HORTICULTURIST. Write for our terms to agents.

Western Market for Fruit

(Continued from page 1)

Representatives of western firms have this year bought very largely in Ontario on the f.o.b. plan, subject to inspection by the buyer at shipping point. This method has given entire satisfaction both to buyer and seller. As evidence of the fact that the western consumer desires fruit of first quality and that a suitable article can be procured in Ontario, we may say that the Norfolk County and Forest Co-operative Associations have sold 14,000 and 5,000 barrels respectively, in this way this season. Prices secured were very satisfactory. In this connection, the fact is worthy of note that the westerner is a free buyer and is more willing to pay a good price for an article which suits him than is any other class of customers within our reach.

MUST PACK HONESTLY

As further evidence of the wisdom of careful grading and honest branding, the following is quoted from a communication dated November 3rd, 1908, received from a Winnipeg firm: "We had three cars from the Georgetown Fruit Growers' Association. The first car made them very little money; the second improved quite a little, the buyers getting next to the brand, and the third car sold to good advantage. It was fifty per cent. No. 2, and is going to net them back $2.35. We are using this to show what it means to the shipper to have stuff properly graded, packed and branded. We have other shippers who have marked their stuff No. 1, and whose apples will average them only from $1.00 to $1.50 a barrel. This is my best explanation regarding packing, grading and branding."

TRANSPORTATION AND RATES

Other problems which relate themselves to this subject are those connected with transportation rates, express and freight service and the customs tariff. In point of time Ontario is nearer Winnipeg than are California, Washington, Oregon and British Columbia. The new route of the C.P.R. places Winnipeg within thirty-six hours of Toronto by express. British Columbia shipments reach the same market in three days. The same rate of charges is paid in either case, $2.00 per 100 pounds in carload lots, and $2.40 in part car lots

By freight, the average time from Ontario points to Winnipeg is five and three-quarter days, while from Oregon and British Columbia the time required is from six to eight days. The freight rate from points in Ontario to Winnipeg on fresh fruit in boxes, baskets or barrels and also on vegetables when shipped as part carload of fresh fruit is 66 cents a cwt. To Brandon the rate is 86 cents, and to Regina 126 cents. On straight car loads of apples in either boxes or barrels, the following rates apply from Ontario points to the west: To Winnipeg, 55 cents; Brandon, 68 cents; and Regina, 83 cents. The foregoing tariffs are for all-rail shipments.

By lake and rail, the following rates apply: To Winnipeg, 48 cents, and to Brandon, 61 cents. From points in British Columbia to Regina, Brandon and Winnipeg, I am informed that a flat rate of 100 cents a cwt. applies. From points in Washington and Oregon along the O. R. & N. the rate to Regina is 124 cents. From these points to Winnipeg there is a competitive rate of 118 cents.

Our western competitors for the markets of the prairie provinces enjoy no advantages in the way of transportation facilities. The ventilated or "blower" express cars are in common use here as well as there, and are very satisfactory. It is felt, however, that the rates charged on Ontario shipments are rather out of proportion to those asked of British Columbia shippers. For shipment by freight of summer and early fall fruits, including early apples, refrigerator cars are used. Excellent results have been secured by re-cooling this class of goods. For long distance shipments in warm weather this operation is coming to be regarded as essential. Mr. Robert Thompson, manager of the St. Catharines Cold Storage and Forwarding Co., states that peaches handled in this way can be laid down in Winnipeg in good condition, and at a moderate cost. Large quantities of fruit go forward during favorable weather in the fall in ordinary box cars. After Nov. 1st, however, there is danger of frost, and refrigerator cars are again resorted to. A sufficient supply of these is not available at this season, however, and as a consequence heavy losses often occur. From a circular issued by the C. P. R. to shippers and consignees, I quote the following regarding the handling of green apples, via lake and rail from eastern Canada to Manitoba, Saskatchewan and Alberta: "The Canadian classification provides for the carriage of green apples at owner's risk of freezing and prepayment of charges between Nov. 1st and April 30th.

"Notice is hereby given to connecting steamer lines, shippers and consignees that the railway companies will not assume responsibility for damage to green apples by frost, delivered to them at the above ports (Duluth, Fort William, Port Arthur, and West Superior) at the head of the lakes, on and after Nov. 1st, nor will the railways guarantee to furnish refrigerator equipment for all such traffic, it being impossible to do this owing to the practice of confining the shipment to a short period late in the season. Railways will, however, as far as possible, supply refrigerator cars and permit the owners of such apples to equip these cars with their own means of heating. When box cars are used, the owners will also be permitted to line and place stoves or other means of heating in them, providing that in so equipping the cars with heating apparatus, damage will not be caused to cars. The railway company will also furnish free transportation for attendants accompanying cars for the purpose of looking after the heating and will return such attendants to the starting point free of charge."

As a matter of fact, a shortage of cars usually exists by the all-rail route as well. It is, of course, practically impossible to equip a box car with heating equipment sufficiently to render shipment in cold weather reasonably safe. Refrigerator cars themselves are not safe in severe weather, and it will be one of the problems of the future to devise methods of avoiding frost injury to late fruit intended for distant markets.

Mr. A. C. Macpherson points out that at the present time the export trade is receiving favors in the way of relief in icing and cold storage charges from the Dominion Government, and that inter-provincial trade would also seem to merit similar encouragement.

THE TARIFF

Following is a statement of the customs tariff at present in force on fresh fruits entering Canada from the United States: Bananas, plaintain, pineapple, etc., free; oranges, lemons and limes, free; blackberries, gooseberries, cherries, strawberries, and currants, the weight of the package to

be included in the weight for duty, 2 cents per pound; cranberries, plums and quinces, 25 per cent.; peaches, weight of package included, 1 cent per pound; grapes, 2 cents per pound; pears, apricots and nectarines, 50 cents per 100; apples, per barrel, three boxes estimated as one barrel, 40 cents each.

MR. E. D. SMITH'S OPINION

From a letter recently received from Mr. E. D. Smith, Winona, Ont., I quote the following: "The west is an outlet which enables us to very largely increase our acreage in many lines of fruit. Our chief difficulties are the high express rates and the low duties. If we had high duties or low express rates we could capture nearly the entire western trade for peaches and plums, which would amount to hundreds of thousands of dollars annually; but betwixt the low duties and the excessively high express rates we are seldom able to compete with California peaches and plums laid down there by freight under a low duty. In grapes we have a high duty amounting to practically 200 per cent. What is the consequence? The consumers are able to buy grapes as low as 1½ cents a pound, so they are not hurt very badly by the prohibitory tariff. The consequence is, however, that we are able to grow a sufficiently broad acreage to supply the entire wants of the Canadian public from ocean to ocean. That is the way it should be in peaches and plums. On articles such as grapes, pears and apples, which we can lay down by freight in the north-west, we have no difficulty in competing except in the early part of the season. Even in these fruits with higher duties we would secure a greater share of the market. which would mean our ability to plant increased acres and not hurt the consumer one iota if our fruits are in the market."

ESSENTIALLY FOR ONTARIO

A careful summary of western market conditions, competition and transportation problems, cannot but lead one to the conclusion that the western market logically belongs, in great measure at least, to Ontario. It only remains for Ontario men to come to an appreciation of the opportunities which are opening to them in that vast new country and to make united and intelligent effort in order to secure their proper share of that important trade.

Gum on Peach Trees

The alarming increase in the number of gum exudations on peach trees in the Niagara district during the past season brought about an investigation into its causes by Mr. L. Ceasar, O. A. C., Guelph. It was found that brown rot of the peach and plum is the chief cause. The following ways of preventing the trouble are therefore suggested:

1. Be sure to remove as soon as possible all mummied fruit, not only from peach trees but also from plum trees near by. These should be collected and burned and not left on the ground. Such fruit should be destroyed each season as soon as possible after picking has been completed.

2. In the spring of the year prune off all diseased twigs and open up the trees to the sunlight and air.

3. Spray with lime-sulphur before the buds open. Cover every part of the tree thoroughly.

4. Thin the fruit. Where peaches touch each other the rot gets a better chance to thrive.

Many American peach growers claim to have done much to keep off the rot by summer spraying with the commercial lime-sulphur or with the self-boiled lime-sulphur of half the ordinary strength

Where trees have been badly attacked this year it will pay to spray them this fall with Bordeaux mixture to destroy the spores in crevices and in the old diseased parts.

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About Queen Victoria Park

Editor, THE CANADIAN HORTICULTURIST:—Surely the Ontario Government is not going to allow politics in any way to influence the appointment of a Parks Commissioner or Superintendent for Queen Victoria Park! That would be a calamity. There should be a general superintendent, who would have charge of the work and oversight of things in general, and also one of the best landscape architects that can be procured. Should the latter's time not be fully occupied in Queen Victoria Park, there are other public grounds owned by the government that need the attention of such a man. The government should have an A1 landscape architect in its employment, who would lay out and make plans and specifications of any grounds for any city or town who might want such services.

The possibilities of this Queen Victoria Park are very great. Few realize its importance and possibilities. The situation is unique. The park is visited by tens of thousands of tourists every year from all parts of the world. It should be made a model, not so much in fine detail, as in general lay-out and planting of trees and shrubs for landscape effect.

While the shrubbery is very fine (what there is of it), there are not the varieties there that there should be, neither are there many varieties of trees. Both trees and shrubs should be the leading features of this park. Highland Park, Rochester, N. Y., has some 1,400 varieties of shrubs in it. Why should not Queen Victoria Park have quite as many? Every tree, native and foreign, that will stand the climate should be there.

When such cities as Chicago, New York and Detroit, can spend 50 to 60 cents per head of population per annum on their parks, park-ways and boulevards, surely the wealthy province of Ontario should spend a few hundred thousand dollars on a national park. Queen Victoria Park should be made one of the most attractive features for visitors to Niagara Falls.—John S. Pearce, London, Ont.

Re Queen Victoria Park

Editor, THE CANADIAN HORTICULTURIST:—Your editorials in recent issues are right to the point. Owing to the favorable climatic conditions, Victoria, on Vancouver Island, and Niagara Falls, Ontario, seem to be the best spots in the country for botanic gardens or, at least, for horticultural gardens—the one for the Pacific half of Canada and the other for the Atlantic half. The writer has never visited Victoria, but believes that there is something of the sort already there. It would be interesting if one of the correspondents of THE CANADIAN HORTICULTURIST would give some description of these gardens and also something about the management of them. Mr. Roderick Cameron, before leaving Queen Victoria Park, at Niagara Falls, for Toronto, did good work on these lines, and had collected there a most interesting collection of herbaceous plants, trees and shrubs, probably the best, if not the largest, collection in the country.

From current reports it is to be feared that this collection has sadly deteriorated during this year, an effect of the sinister workings of politics, the introduction of which into these matters must be deeply lamented by all interested in horticulture. The politicians possibly are unaware of the mischief done, but if so no time should be lost by the horticulturists of the country in acquainting them with the facts of the case.

The best man in the country should have charge of this magnificent park (Queen Victoria). The "best man" will have no time and most likely no inclination either

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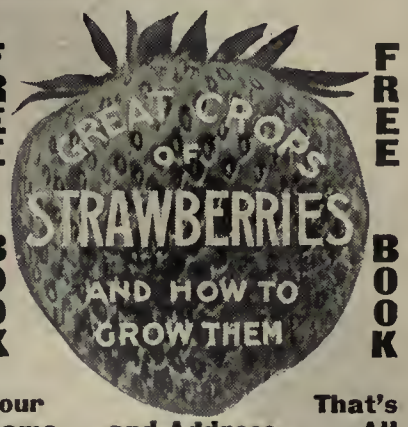

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to dabble in politics or anything else outside of his own profession. The possibilities of the place, its beauty and grandeur should so fill his mind and fire his imagination that he would give his life to the bringing forth of his conceptions, and the exercise of his knowledge.

Niagara Falls is the Mecca of all tourists to this continent from other lands as well as to those of the continent. Is it not, therefore, up to the government, which owns the border of the river from lake to lake to keep up and improve the national attractions of the place to the highest possible degree?—*Veritas vincit.*

On account of the drought last season, strawberry plants made poor growth and the strawberry next summer probably will be a scarce article. Growers will plant largely, therefore, for the following year. They will be able to sell all that they can produce for the two succeeding years. Plant only the best varieties from stock of the best strains. Only the best is grown by the R. M. Kellogg Co., of Three Rivers, Mich. Read their advertisement on another page.

Nova Scotia Fruit

The Nova Scotia Department of Agriculture sent a large display of fruit to the Royal Horticultural Show in London, England. Besides the fruit in packages, an excellent exhibit of small fruits bottled in antiseptic solutions went forward. About 200 jars were put up mostly by growers in the counties of Hants and Kings. Mr. Peter Barrett, of Truro, N. S., bottled a large collection of gooseberries and currants of many varieties grown by himself from bushes of imported sorts and many that he has originated. A portion of the lot is illustrated on this page. A list of the Nova Scotia prize winners is published elsewhere in this issue. In a letter received by THE CANADIAN HORTICULTURIST from Mr. Barrett, the following point is well taken:

Small Fruits Bottled in Preserving Solutions

"At our provincial and local exhibitions there is very little encouragement for this class of fruits. It is to be regretted. The

Fruit Lands in the Glorious Kootenay Valley
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Magnificent Surroundings.
A good income upon a moderate capital.
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prize money offered will not psy for the cost of fruits preserved in this way, which includes cost of jar, solution, fruit, labor and so forth. The small fruit industry is worthy of more encouragement."

Toronto Vegetable Growers

A meeting of the Toronto branch of the Ontario Vegetable Growers' Association was held on Dec. 15, the president, Thos. Delworth, occupying the chair. A large number of the members were present. The annual report was presented by Secretary Frank F. Reeves, showing a membership of 136, and balance on hand of $210. It was decided to hold a monthly exhibition of some vegetable to be selected for the occasion; only members can compete. Prizes for Yellow Globe Danver onions exhibited at this meeting were won by: 1st, J. G. Brown; 2nd, Frank F. Reeves; 3rd, James Dandridge, all of Humber Bay.

The election of officers for 1909 resulted as follows: President, Thos. Delworth; Weston; vice-president, James Dandridge, Humber Bay; secretary-treasurer, Frank F. Reeves, Humber Bay; provincial directors, J. W. Rush, John McKay, Jas. Dandridge, Frank F. Reeves, H. J. Sharpley, and Thos. Delworth; executive committee, H. G. Carter, J. W. Rush, H J. Sharpley, John McKay, James Stevens, Frank R. Reeves, and Thos. Delworth; representative on Canadian National Exhibition Board, Thos. Delworth.

I have been a subscriber to THE CANADIAN HORTICULTURIST since its second year. It has more than kept pace with the general advancement in horticulture, and is unquestionably the best paper in its line that reaches me.—Watson C. Orr, Wentworth Co., Ont.

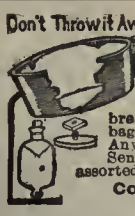
Dipping Nursery Stock

Dipping nursery stock in lime-sulphur wash or other insecticides has recently been much advocated as a substitute for fumigation with hydrocyanic acid gas The Agricultural Experiment Station at Geneva, N.Y., finds, however, that this treatment, if used at all, must be handled with care to secure scale destruction without injuring the trees. With the sulphur wash, exposure of the trees for too long a time or at too high temperature resulted in injury; while with any of the materials used, exposure of the roots to the mixture resulted in serious injury to the stock.

For nurserymen, the station still recommends fumigation as most effective and least liable to injury; and would advise orchardists to use the lime-sulphur as a spray after the trees are set, rather than as a dip when they are received.

Large orders for Nursery Stock.—As an illustration of the expanding business of Mr. M. J. Henry, the foremost nurseryman of western Canada, it might be mentioned that recently shipments were made from his head nursery, 3010 Westminster Road, Vancouver, to St. George, Bermuda, to China, and to Bellray Castle, the home of Sir Arthur Middleton. Mr. Henry recently supplied also the full order for ornamental trees, shrubs and vines for the Empress Hotel, Victoria. This order was secured in open competition with many outside points. The total weight of the shipment was over four tons, probably the largest shipment ever sent to a single purchaser on Vancouver Island. This is only another instance of the phenomenal development of this great industry.

Did you ever read "The Hoosier School Master?" This book would make a splendid Christmas gift. See the advertisement elsewhere.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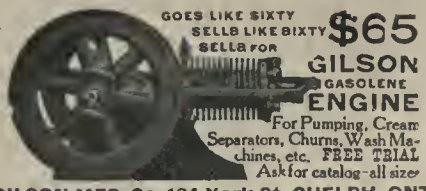

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The Canadian Horticulturist

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NOTES FROM THE PROVINCES

Nova Scotia

Eunice Wells

Nova Scotia has again been carrying off medals for apple exhibits at the Colonial Fruit Exhibition in London. The government collection was awarded a gold medal while private exhibitors having more than 15 boxes were awarded as follows: Silver and gilt Hogg medal, F. A. Parker, Berwick; silver and gilt Knightian medals—W. H. Woodworth, Berwick, and H. A. Blanchard, Upper Dyke; silver Hogg medal, J. Howe Cox, Cambridge; silver Knightian medals—H. D'Almaine, Wolfville; R. J. Messenger, Tupperville; J. A. Kinsman, Lakeville, and F. H. Johnston, Bridgetown; silver Banksian medals—A. L. Morse, Berwick; E. T. Neilly, Middleton, and F. Foster, Kingston; bronze Banksian medals—Berwick Fruit Company, Berwick; William Sangster, Falmouth, and Ralph S. Eaton, Kentville. Those persons exhibiting less than 15 boxes were not awarded prizes, but their exhibits were to be sold with the rest. Very favorable comments with regard to the Nova Scotian exhibits appeared in the English papers.

The apple shipments from Nova Scotia to the end of November were as follows: Shipments to Newfoundland, U. S. A. and local ports, about 78,000 barrels; to the British Isles—London, 161,190 barrels; Liverpool, 64,662 barrels; Glasgow, 21,590 barrels; a total of 227,442 barrels, as against 199,435 sent in the same period last year to the Old Country. The last returns for apples showed a drop of about two shillings in the English markets.

Western Annapolis Valley

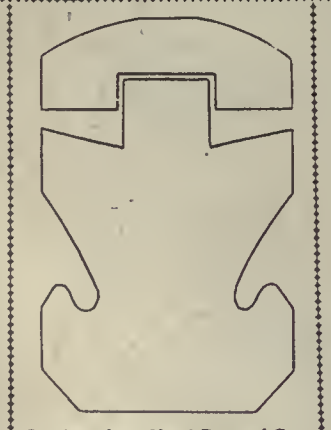
R. J. Messenger

Apples are looking up. As high as $2.50 a barrel has been paid for Baldwins, which variety seems to be regaining popularity after being in disfavor for some five years. One buyer told me that he would pay more for Baldwins this year than Nonpareils. This last named variety has generally been conceded one of the highest selling varieties. Not such a general purchase of all varieties is noted this year as last, but buyers are buying only as each variety becomes seasonable for shipping. They are much more cautious than usual.

The bud moth scare seems to have given place to the fear that our orchards may be devastated by canker worms next year. During the past summer several orchards in Kings and Annapolis counties were more or less defoliated by the canker worm and it has become quite fashionable among orchardists, good, bad and indifferent, to paint a strip of bark around the trunks of their trees with a mixture of resin and castor oil to catch the female as she ascends the trunk to lay her eggs. This treatment, with a thorough spraying next summer with poisons, will eradicate this pest.

Send fruit news for publication.

BATTS, LIMITED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The wonderful results to be obtained by the use of potash in growing strawberries are shown on Page IV.

Turn to Page IV and read the special offer of Dupuy & Ferguson. Seed Co., of Montreal.

THE
New Brunswick Fruit Growers' Association
will meet in Convention at
Fredericton, January 14 and 15

Many authorities on fruit matters will address the meeting, including Mr. W. T. Macoun, Horticulturist, Central Experimental Farm, Ottawa, and Mr. G. H. Vroom, Dominion Fruit Inspector, Middleton, N. S. It will pay you to attend.

I. W. STEPHENSON, President. Sheffield, N. B.
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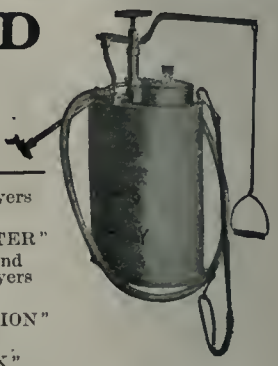

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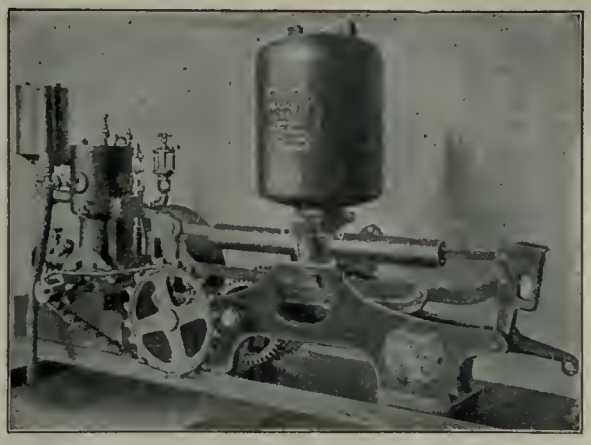
At the convention of the Ontario Fruit Growers' Association, very favorable opinions were expressed as to the splendid results received from the use of "Niagara Brand Lime and Sulphur." The Niagara Sprayer Co., who make this material have an advertisement on another page that is worth reading. They have a staff of experts on spraying that are always willing to furnish free information to those desiring it.

Fruit growers in Canada will be pleased to learn that one of the largest manufacturers of Spray Pumps in the United States has opened a Canadian branch. This move has become necessary owing to the great increase in the demand for "Gould Pumps" in Canada. The reputation of this company in the United States as makers of high-grade pumps, is unquestioned and doubtless their name will soon be a household word among Canadian fruit growers, as it now is among the leading United States growers. Their Canadian address is Goulds Pump Co., Coristine Bldg., Montreal. See their advt. on another page.



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This machine is sold under strongest kind of guarantee. Has a capacity of 16 Nozzles working together at 150 lbs. pressure. Fills its own tank. Two speeds. Operated by gasoline or any engine. Can be fitted on top, at side or end of tank. We will supply you with wagon, platform, tank, engine, derrick, all complete or in part, as desired.

Catalogue and full particulars are your's for the asking.

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It takes all the work out of wash day. Improved Roller Gear makes washing quick and easy.

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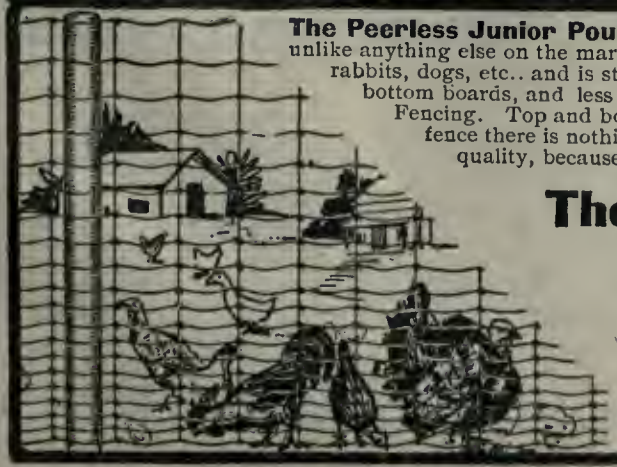
PEERLESS JUNIOR POULTRY FENCE



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Apterite.—In reference to Apterite, I feel sure that it is destined to become a useful and necessary article in the production of all plant life. I have tried it on several plants and the results are good. Begonia Gloire de Lorraine potted into five and six-inch pots in soil in which Apterite was used, gave very fine results and seem to hold their flowers much longer than usual. A few young crotons were tried with Apterite and give promise of fine growths, with no signs of insect life. I have no hesitation in saying that I feel sure that Apterite will be much used in the production of all horticultural produce with good results in the near future.—(Signed) E. F. Collins, Secy., Toronto Gardeners' and Florists' Association.

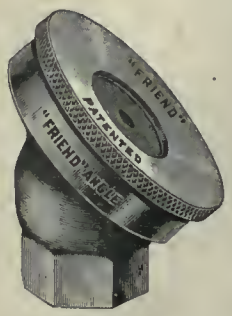
At the Colonial Fruit Exhibition in London, England, in November, British Columbia won many prizes. Among the winners of medals were: Thomas G. Earl, Lytton; Kamloops District; Kaslo District Agricultural Association; Summerland District; Mrs. J. A. Smith, Spence's Bridge; Salmon Arm Farmers' Exchange; Victoria District; Salt Springs Island; Jas. Johnstone, Nelson; Jas. Gartrell, Summerland; and Chilliwack District.

The New Brunswick Fruit Growers' Association will hold its annual convention at Fredericton, on Jan. 14, and 15. An interesting and valuable meeting is being looked forward to. Among the speakers will be Mr. W. T. Macoun, horticulturist at the Central Experimental. Farm, Ottawa, and Mr. G. H. Vroom, Dominion Fruit Inspector, Middleton, N. S. The New Brunswick Cold Storage Co. will be represented and a number of small fruit growers are preparing papers. All persons in the province shoud plan to be at this meeting. For further particulars write the secretary Mr. S. B. Hatheway, Fredericton, N. B.

The big apple show held at Spokane, Wash, was a great success. It was the largest show of its kind ever held in the world. British Columbia, to her credit, secured about 1-7th of the $35,000 offered as premiums. About $5,000 of this was won by Mr. F. R. E. DeHart of the Kelowna district. Lack of space prevents the publication of a full account of this big show. It will appear in the February issue.

The Nova Scotia Fruit Growers' Association held its annual convention last month at Middleton. Many important papers were read which will be referred to in later issues. A resolution was passed asking for a better tariff arrangement with Germany. The officers for the ensuing year were elected as follows: Pres., Miles Chipman; senior vice-pres., E. E. Archibald; sec., S. C. Parker; asst.-sec., J. H. Cox; treas., George W. Munro. The county vice-presidents remain practically the same.

Two "Friends"



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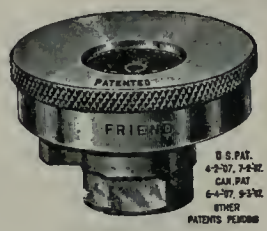
Positively our own idea. Any others like them are infringements.



"Friend" Regular

The original large spray Nozzles doing away with the cluster. The only ones with the maker's name and the word "Patented" stamped upon them. They have no horns, hooks, nothing to catch, drip or clog. Makes the finest mist-like spray. Drives the spray farther into the trees than the cluster. The **"Angle"** sprays up under the leaves and down into the **CALYX.** The **"Regular"** is for ordinary work. State which is wanted. Satisfaction guaranteed or money refunded.

OUR PRETTY NEW CATALOG IS READY
It illustrates our line of Hand and Power Sprayers for 1909.
Sales on which are now doubling any previous season.
Deliveries are being made.

"FRIEND" MANUFACTURING CO.

GASPORT, NIAGARA COUNTY, N. Y.

Manufacturers of the first complete Gasoline Power Sprayer

TREE SPRAYING

This shows the **H. P. SPRAMOTOR** at work spraying trees. Horse does all the work but holding the pole. Four Nozzles at 125 lbs. pressure practically smoke the tree with spray. All automatic. By horse or hand operated and controlled. Number of nozzles can be arranged to suit size of trees. The largest tree may be sprayed; for one or two horses same price. Also arranged for vineyards, row crops, strawberries, grain crops.

Nozzles will not clog.

This ad. will not appear again, therefore

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We Teach By Mail how to mount birds, animals, game heads, tan skins, make rugs and mount all trophies. A delightful entrancing and money-making profession for men and women. Easily and quickly learned. **Success guaranteed or no tuition.** Endorsed by thousands of delighted graduates all able to secure big incomes. **Great Book FREE!** Our beautiful, illustrated book, "How to Learn to Mount Birds and Animals," and our handsome Taxidermy Magazine sent absolutely free to all who write. Stop depending on a job. Be a professional man or woman. Write today.

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N. W. School of Taxidermy, Box 128 A Omaha, Neb.

The Canadian Horticulturist

Vol. XXXII FEBRUARY, 1909 No. 2

The Horticultural Possibilities of Manitoba

James Murray, Superintendent, Experimental Farm, Brandon

OF the prairie provinces, all of which have been lavishly supplied with edible wild fruits, Manitoba received probably the most abundant share. Wild strawberries, raspberries, currants, saskatoons, cherries and plums grow abundantly, and have long been a source of fruit supply and, although good in quality and frequently abundant yielders, they have not been permitted to occupy the field alone. Improved varieties have been grown since the early settlement of the province, and the suitable sorts have survived the trials of many years. The progress that has been made in thirty years in fruit, flower, and vegetable growing is notable, and may be taken as an index of what may be accomplished.

SMALL FRUITS

One of the most successful lines of horticulture is the growing of the small fruits—currants, raspberries, and gooseberries. These grow profusely in a wild state and under cultivation have been a striking success from their earliest introduction. Strawberry growing has not met with the same success, but in some districts splendid crops of a high class of fruit are harvested. The difficulties in the way seem to be the late spring frosts, the high winds and the lack of sufficient moisture. Where these factors can be counteracted or controlled, strawberry culture should be at least fairly successful. Blackcaps and blackberries have not been so successfully grown as red raspberries, but on this farm have met with fair success.

APPLE GROWING OUTLOOK

Apple growing in Manitoba has not yet reached the stage where it may be classed among our industries, but is making such progress that its exponents are no longer regarded as visionaries. Most of the early attempts to grow apples were unsuccessful on account of the stocks not being sufficiently hardy, but the introduction of hardy Russian varieties, and the use of *Pyrus baccata* as a stock is rapidly changing this. It is now no uncommon sight to see a few bearing trees of such crabs as Transcendent and Hyslop, and of apples like Hibernal and Duchess in farmers' grounds in many parts of Manitoba, particularly in the southeast.

On the Experimental Farm considerable progress has been made largely through the use of *Pyrus baccata* as a hardy stock and, to a certain extent, as one of the parents used in cross breeding. Among the varieties fruiting here are Hibernal, Duchess, Repko, Kislaga, Transcendent and Hyslop. Besides these there are a great many cross-breds and seedlings, some of which are of fair size and quality.

By far the best known apple grower in Manitoba is Mr. A. P. Stevenson of Nelson, who has been experimenting for over twenty years with apples, and who for several years has been reaping the fruits of his labors. Mr. Stevenson has had as much as sixty barrels of standard apples in one season, and has fruited over thirty varieties. Of these he recommends only a few, such as, Anisim, Antonofka, Simbrisk, Blushed Calville, Wealthy and Hibernal. In justice to other fruit growers, it should be mentioned that the location and altitude of Mr. Stevenson's farm are unusually well adapted to fruit growing. His success could no doubt be repeated at many points in Manitoba, now that northern-grown stock can be secured.

Kind Words from Manitoba

Editor, THE CANADIAN HORTICULTURIST:—I must compliment you on the improvement that has been made in THE CANADIAN HORTICULTURIST during the past three years. I find it very interesting from month to month, and think that you should have a large number of subscribers in this province.—James Murray, Superintendent, Experimental Farm, Brandon, Manitoba.

PLUMS

Plums are plentiful in a wild state in some parts and, as many of them are of good quality, they have been introduced into cultivation very successfully. Attempts to grow European or Japanese plums have not been successful.

CHERRIES

Cherry growing cannot be said to be of any importance. The pin cherry (*Prunus pennsylvanica*) and choke cherry (*Prunus virginiana*) are everywhere common, but are a poor substitute for the genuine article. A variety introduced by the Experimental Farm—the Japanese cherry (*Prunus tomentosa*)—has fruited at Brandon and seems to be hardy. It will probably prove useful.

VEGETABLES GROW TO PERFECTION

Vegetables are such a conspicuous success in Manitoba that a word is called for. Nowhere in Canada can vegetables of finer quality or greater yields be grown. Our very long days and bright sun force the growth and give a product unsurpassed in flavor. Tomatoes grown in the open can frequently be used for six weeks, and sweet corn grows to perfection and occasionally ripens. All the vegetables commonly grown in other parts of Canada are at home in Manitoba, and give crops as heavy and of as fine quality as produced anywhere.

GARDEN FLOWERS

The climate of Manitoba seems to be particularly well adapted to the growth of perennial flowers and hence they are largely depended upon by many of our gardeners. Pæonies, iris, campanula, larkspur, columbine, phlox and numerous others make splendid displays of bloom, and all the annuals that succeed well in Ontario make a better display here. Our long days of bright sunshine give colors much more striking than where the days are shorter. Success with annuals does not depend upon starting the plants under glass as we have fully fifty varieties of annuals in full bloom each year from seed sown in the open.

HORTICULTURE IS ADVANCING

Interest in horticultural matters is being encouraged and stimulated by a number of horticultural societies scattered throughout the province, especially by the Western Horticultural Society. By periodical shows, competitions and meetings, these societies encourage the planting of trees, shrubs and flowers, and the beautification of grounds and streets. Our landscape lacks the variety and beauty of the eastern provinces and such societies have a wide field for their work. They have accomplished a great deal already in many towns and cities and they deserve every possible help and encouragement.

Treatment for Pear Blight*

M. B. Waite, Pathologist, U.S. Department of Agriculture

AMONG the factors that influence pear blight the presence of the germ is of primary importance. If the pear blight is not present in the orchard or in the immediate vicinity there can be no blight. When spring opens up and new growth begins, if the germs are present or conveniently near by, and the conditions favorable, blight has a great opportunity to spread and accomplish its work of destruction. If, on the other hand, the germs do not occur, no matter how favorable conditions may be, there can be no blight.

The main method of controlling pear blight is to cut out the holdover blight. This is usually best done in late summer and autumn but it may be done at any time through the winter or early spring before the blossoms appear. When blight occurs on the main limbs or on the collars of the trees, one of the principal things in combatting the disease is to find all the cases, especially where the blight occurs under the rough bark. It requires close examination to find and remove all the blight in the tops of the trees but this can best be done in the summer or early in the autumn while the foliage is still on, the blackened dead leaves enabling one to easily locate the blighted branches. Summer cutting out of pear blight must be regarded, however, as of secondary importance in the treatment, though still a good thing to do, when followed by late treatment. On rapidly growing twigs and branches it is usually necessary to cut a foot or more below the lowest discoloration of the bark. In fall and winter pear blight cutting, it is usually possible to cut pretty close to the blight, say four to six inches, or, where it has thoroughly died out, an inch may do. On the other hand, when the blight blends off imperceptibly from the dead bark into the live bark, as it often does in summer, from one to two feet below the lowest point may be considered necessary.

In all work of cutting out pear blight a disinfectant should be carried to sterilize the tools and cut surfaces. For this purpose, one of the most convenient germicides is a 1-1000 solution of corrosive sublimate. A bottle of this can be carried in the pocket and a sponge, tied to a string, kept saturated with this solution. After trimming out the blight or removing the blighted bark from a diseased area, the cut surface as well as the instruments should be sterilized before turning to another infection. It is possible with proper tools such as a gouge, draw shave or box scraper, or, better, a specially made scraper, to remove the bark from a blighted area, disinfect the surface and thus save a large limb or the trunk of a tree instead of removing the same. All small limbs which can be easily spared should be cut out in removing the blight.

The object of the treatment of pear blight is to cut all blight from the trees, and save all the healthy parts that can be saved. Blight completely kills the bark of that portion of the tree which it reaches but leaves the rest of the tree wholly uninjured. The only exception to this is where the girdling effect is produced by the blight at the collar or on the branches. Very few orchardists thoroughly know and understand pear blight. It has been with them so long that they regard it as one of the inevitable troubles of the year and, in fact, the apple as well. Still less generally known are the modern methods of controlling this disease by eradication.

Scenes Like This are Common in Canada During the Spraying Season

The illustration shows Mr. A. N. Brown of Wyoming, Del., well known in Ontario, and assistants spraying with a Niagara Gas Sprayer.

*This is a continuation of Mr. Waite's address before Ontaria Fruit Growers' Association. His remarks on Peach Yellows will appear in next issue.

Spraying Strawberries

L. A. Hamilton, Lorne Park, Ont.

The plants on the two-acre plot of strawberries set out on my farm in 1907 looked so promising in the spring of 1908 that I determined to give them every possible chance to fight down insect and fungous pests. Adopting the formula given by the Norfolk Fruit Growers' Association as a basis, I sprayed heavily on the 21st of May with the following solution: Five pounds of blue vitriol, twelve pounds of lime, four ounces of Paris green to fifty gallons of water. Owing to the high percentage of lime the patch after spraying looked as if it had had a good dusting of snow.

It would be unwise to lay too much stress on a single experiment of this kind; but I can only say that we never had such a splendid patch of berries before on this farm. The plants continued to be strong and vigorous, and absolutely free from injurious insects, rusty and spotted leaves. The leaves held their dark green lustre until the crop was ripened. We gathered 13,000 boxes off the two acres. A finer lot of strawberries I have not seen before in this locality, much superior in size and quality to anything we had grown before.

This does not prove that these results were due to spraying. Several other factors might have exerted a potent influence, such as the plant stock, condition of soil, location, wintering and fruiting season. But the sprayed plants gave so much better results than the unspray-

ed that there is sufficient to warrant a continuance of the practice, and to make one lay down the principles that, as far as Glenleven Farm is concerned, spraying will have its proper place in the future.

Low-Heading of Trees

Editor, THE CANADIAN HORTICULTURIST:—In a recent issue, you invited the opinions of growers on the low-heading of trees. In my opinion low-heading is the only proper method. An orchard of trees with branchless trunks, six or seven feet high, is unsightly to begin with.

The low-down heads usually grow more symmetrical, the fruit is easier to gather, spraying can be done better, the wind does not affect the tree so much, there is less breaking at the crutches, pruning is more easily done, there is less sun-scald of the trunks, and less useless wood to be supported by the tree.

The sole advantage of high headed trees—convenience in cultivating among them—is becoming of little importance, owing to the introduction of machinery specially adapted to the purpose.—W. J. Kerr, Ottawa.

Many excellent varieties of apples can be grown in the home orchard that the commercial apple man would not think of growing.

As the currant is one of our hardiest and most productive of fruits, it is often neglected. If you want to make the best of the bushes, treat them accordingly.

Commercial Lime-Sulphur Solution*

H. A. Surface, Department of Agriculture, Harrisburg, Pa.

THIS year marks an epoch in the San Jose scale warfare by the appearance of a reliable commercial insecticide which can be used at any strength with absolute safety on any kind of tree or bush and with the knowledge that it will destroy the pests if applied thoroughly and strong enough. This material is nothing more nor less than lime-sulphur wash, made on a commercial basis, in a concentrated form, and prepared ready to ship in barrels or other vessels to the consumers as ordered.

To a person who wishes to use but a comparatively small quantity and not go to the trouble of building a fire under a kettle to make his own boiling mixtures, the prepared or commercial lime-sulphur wash will be most satisfactory and a boon. It has come as a response to the demands of our fruit growers, rather than being forced upon them by agents and manufacturers. It will destroy not only the San Jose scale, but other insects with which it comes in contact, such as the eggs of the tent-caterpillar and the canker worm, the larvæ of the codling moth in their winter retreats, the bud moth, plant lice eggs, and other pests that are to be found upon the trees during the winter time. It is also a fungicide, as is the home-made lime-sulphur wash, and one thorough spraying of peach trees with it during the dormant season is enough to prevent the destructive effects of peach leaf curl in that orchard during the entire next summer.

*Extracts from a bulletin of the division of zoology of Pennsylvania Department of Agriculture.

While it is not quite as cheap, in regard to the cost of material, as the home-made wash, yet it is much less expensive than the other commercial insecticides on the market, particularly the various brands of soluble oils. Of course, it is easy for any fruit grower to learn just what his raw material costs him and compute the value of his time, fuel and apparatus in making the home-made lime-sulphur wash and compare this with the cost of the commercial lime-sulphur wash, plus the freight delivered at his station.

In general, a fifty-gallon batch of the home boiled lime-sulphur wash ready for use costs about one cent per gallon for ingredients alone, and the commercial lime-sulphur wash when dilute costs about two and a half times this much, or two and one-half cents per gallon. We have used it satisfactorily at a strength of one to eight, or one part of the commercial material diluted with eight parts of hot water, and we believe that it might give good results when used one to ten, but would not recommend it weaker than that without first giving it careful trial to be sure that the weaker degree of dilution would not impair its quality in the destruction of the scale.

Like the home boiled lime-sulphur wash, the commercial material can be used upon any kind of tree, shrub or bush, and in any quantity or percentage, without injury to the tree. The only question is to use it strong enough to kill the scale and to use it so thoroughly as to do thorough work. It does not crystallize in the barrels, contains almost no sediment, does not need to be strained, and will keep for any length of time, even for months, and not be injured by changes of temperature. We regard the advent of the commercial lime-sulphur wash as the greatest justification and verification that has been given to the faithful adherents to the home boiled lime-sulphur wash as the standard insecticide for scale insects. While our prediction

Two Power Outfits Used for Spraying for San Jose Scale

This cut and the one on page 26 were kindly loaned by the Niagara Sprayer Co. of Middleport, N.Y.

will bring about no weight in the future, neither for nor against any material, we venture to predict at this time that within a very few years this will be about the only commercial insecticide for the San Jose scale in Pennsylvania, and we agree with orchardists who have written to us stating that they regard it as a solution to the problem as to what to do for this serious pest.

Naming New Strawberries

The editorial in the January issue of THE CANADIAN HORTICULTURIST, suggesting that new varieties of strawberries with bi-sexual flowers be given male names and pistallate ones, female names, has been the subject of favorable comment. A number of letters in reference to it have been received from prominent plant breeders and horticulturists. Among them are the following (others will be published later):

"Your suggestion seems very practical."—W. M. Hays, secretary, American Breeders' Association, Washington, D. C.

"The idea of naming new varieties of strawberries in such a way that the names indicate the sex is new to me, but I like it."—L. H. Bailey, Director, College of Agriculture, Cornell University.

Fertilizers on Strawberries

It has been said that land cannot be too rich for strawberries. When considered within the bounds of reason, the statement is correct. Many growers starve their plants rather than feed them. To grow big berries and lots of them, plenty of manure and fertilizers are required. While barnyard manure in large quantities gives good results, it is not necessary. Commercial fertilizers also give excellent returns when applied properly and intelligently. The experience of many growers in all parts of Canada shows that the application of chemical fertilizers to strawberry land will produce the kind and quantity of berries that mean money. The following letter was received from Mr. E. Copley Thompson, Vernon, B. C.:

"I wish to report the result of some experiments made by myself last summer with artificial fertilizers, supplied by the Victoria Chemical Co., Victoria, B. C. I tried three plots on a dark, leaf-loam soil planted with celery. No. 1 had no fertilizer; No. 2 had complete fertilizer; No. 3 had incomplete fertilizer. No. 2 showed a marked superiority over the others both in growth and color.

"The most marked effect, however, was seen where I tried the fertilizers on strawberries, hoeing them in around the roots. The effect of the complete fertilizer on Plot 2 was so marked that it ought to have been seen to be believed or even to realize the difference. I had three plots marked with pegs, but by bearing time there was no need for them; one could tell at a glance that the plants in one corner were much stronger than the others, the foliage several degrees darker and the fruit much larger. The berries were much admired and customers who once tried them would have no other.

"It is impossible to give the yields on the various plots of berries as it is more than human nature can stand to have an order to fill and see nice berries across a certain line and not pick them. But I can say that Mr. Norris, the Government agent here came up with Mr. Dobie to see the results of my experiments this summer and the difference was so marked between those plants that had the complete fertilizer, incomplete and none, that he (Mr. Norris) said after a glance at them 'Oh, you have not given the others any water.' That theory could not stand, of course, as I watered them equally to get as much fruit as possible from the patch. The difference was so marked in size of berries, in size of plants and also in color, that it had to be seen to be appreciated. My best customers all wanted their berries before breakfast because they tasted so fresh.

"The secret of this was not water, which will bring size without much flavor, but cultivation and the complete fertilizer, which brought them first into the market, giving them the size and flavor. I made $97.15 from 1,000 plants put in in spring of 1907. This was from an $8 investment in Magoon strawberry plants and a bag or so of complete fertilizer, without which I shall never try to raise strawberries."

Spraying Apple Trees

J. C. Harris, Ingersoll, Ont.

Should there be no scale in your district, it will not be necessary to spray until the blossoms are beginning to fall. This spraying is the pivot of success for the destruction of the codling moth and apple scab. Do not wait until the blossoms are all fallen. Do the work thoroughly. Put on lots of material (drenching a little won't hurt). Spray four sides of each tree with this spray if possible. Any part of the tree missed when going north and south can be easily seen when going east and west, the tree thus may be completely covered.

Apply two later sprays, one about ten days later, the other two or three weeks later. I use six pounds of bluestone, eight pounds of lime and six or seven ounces of Paris green to forty gallons of water prepared the usual way. I intend this season to use arsenate of lead instead of Paris green as it is more certain. A few of the important points to be remembered in spraying are:

1. Have a good outfit with a high derrick so that you can see well what you are doing.

2. Keep the liquid well stirred or your efforts will be fruitless.

3. Start in time. Do not wait for the weather. Spray with the wind, if possible.

4. Be sure that your lime is fresh and put in plenty.

5. Remember that the June spraying, as the blossoms are falling, is the most important. Do it thoroughly. This one spraying with no more will give excellent results in most seasons, but spray once or twice if you can.

A Small Part of the Big Apple Show Held at Spokane, Washington

Exhibit of 70,560 Winesaps by Mr. H. M. Gilbert of North Yakima, Wash., who was awarded the second prize of $500 in the carload competition. The illustration was kindly furnished by Mr. August Wolf, Spokane, Wash. At this show, British Columbia won nearly $5,000 in prizes—See page 41.

The New York Apple Tree Canker*

Prof. W. Lochhead, Macdonald College

FROM many sections of the country come alarming reports of the effects of canker on apple trees. An examination of some of the orchards reveals the presence of the New York Apple Tree Canker. The cause of the canker is the "Black Rot" fungus which is commonly found on apples. Professor Paddock of the New York Experiment Station, Geneva, demonstrated satisfactorily by inoculation experiments that the Black Rot fungus is the cause of the cankers so common on the branches of the trees. The first effect of the canker, after the infection occurs in the spring, is a discolored area of outer bark. These areas soon enlarge, and sometimes encircle the branches. The inner bark is killed, and there is noticeable a definite boundary to the diseased areas. After the disease has made considerable headway, the bark loosens and peels off, exposing the bare wood. Of course when apple girdling occurs, the portion of the branch beyond the canker dies. Professor Paddock believes that the fungus effects an entrance through wounds or cracks. It is very probable also that inoculation occurs very frequently through the agency of sucking insects, as I have frequently observed the infection to begin from punctures in the bark, which are probably made by sucking insects. Professors Parrott and Stewart, of Geneva, have very cleverly shown that the Snowy Tree-Cricket (*Oecanthus niveus*) may be the unconscious agent of inoculation of trees by canker.

New York Apple Tree Canker is found more frequently on the larger limbs of well-grown trees than on the smaller and younger limbs of young trees. Moreover thrifty trees are more resistant than weak and neglected ones. On the bark killed by this canker spore bodies termed pycnidia are frequently observed in autumn and winter. The mycelium of germinating spores from these pycnidia cannot effect an entrance to the cambium through the living tissue, but can find an entrance through wounds. Paddock believes that in some cases the mycelium may live over winter in the bark, for he cannot otherwise account for the formation of the largest cankers. Paddock recommends, in the line of prevention of canker, that trees should not be crowded, and that they be pruned so as to admit sunshine and air.

To sun-scald and sun-burn were previously ascribed such injuries to twigs. It is very likely, however, that the injuries due to sun-scald have been exaggerated, although it is undoubtedly true that trees suffer from this cause to some extent. The sun-scald areas are usually quite characteristic. They run longitudinally and are usually found on the south and south-west sides of the limbs.

The treatment which has been recommended for the control of this canker is:

(1). To collect and destroy diseased fruit, which usually accumulates on the trees in orchards. These, however, often contain the spores of the Black Rot fungus, by means of which the cankers are inoculation in the spring. The destruction of such diseased fruits will greatly diminish the liability of infection of the limbs.

(2). To scrape the cankered areas on the limbs and to paint these areas with to coat it with tar or paint.
disinfectant, such as copper sulphate, and

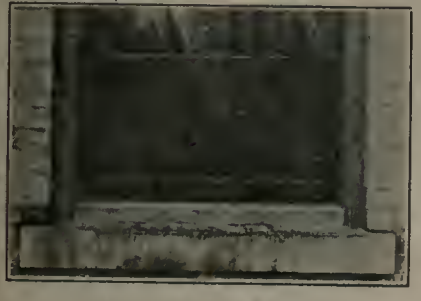
(3). To cut off the smaller cankered branches wherever possible, and to burn them.

(4). To spray with Bordeaux mixture. Observations in New York have shown fairly conclusively that cankers are most abundant in those orchards that are not sprayed with Bordeaux. Applications of Bordeaux made year after year appear to have a cumulative effect in keeping down all kinds of fungous diseases.

Window Boxes, Hanging Baskets and Rustic Stands†

Wm. Hunt, Ontario Agricultural College, Guelph

A WINDOW box does not necessarily require to be of an elaborate or expensive nature, so long as it is strong enough to stand the pressure of the weight of soil used and to resist the efforts of gales and winds to dislodge it from its position. A plain wooden box



An Undecorated Window

made of one inch dressed pine of the following dimensions will be found very useful, inexpensive and effective:

Length of box (over all) should be about the width of the window itself, not including the window frames. The two or three inches in width of frames on each side of the window will allow for covering the box with cork bark, or other material, if required, of which more will be said later. The dimensions given here can of course be changed to some extent so as to suit the style of window, but care must be taken not to have the box too large, so as to be heavy and unwieldy: Width of box at top (inside measurement), nine to ten inches; width of box at bottom (inside measurement), eight to nine inches; depth of box (inside measurement), about seven inches.

The difference in the width of the top and bottom of the box will allow the front to stand at an angle or slope outwards from the bottom up, thus avoiding the common box-like appearance which a perfectly upright front board would leave. This method also allows the drooping varieties of plants to hang clear of the box, thus adding to the effect, as well as being beneficial to the plants. The box should have three or four thin cleats of wood one inch in width and half an inch in thickness nailed to the outside of bottom to allow of free drainage, and to prevent the rotting of wooden sills. Some half inch holes should be bored about six inches apart in the bottom for drainage purposes.

A Plain Painted Box

two inches down from top on inside. A dark, dull, olive-green color is best for The box should be painted outside, and this purpose. A small iron staple or screw-eye should be placed on each end near the front top corner to support the box when placed in position. A piece of strong wire, or an iron hook, fastened

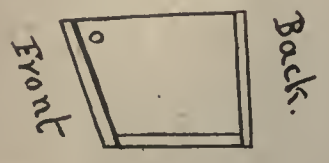
*Paper read at the last convention of the Ontario Fruit Growers' Association in Toronto.

†Part of an address delivered at the convention of the Ontario Horticultural Association, held in Toronto last November. It will be concluded in next issue.

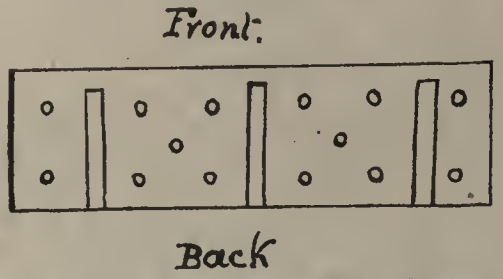
to the screw-eye or staples placed in the windows should be used for this purpose. The box should have at least three inches bearing on whole length of window sill. A piece of galvanized sheet iron may be placed on the sill to prevent the sill from rotting. The following diagrams will perhaps be of service in the construction of the box:

A box constructed as stated will with ordinary care last for nine or ten years if given an occasional coat of paint.

A more elaborately constructed box can be had by having the bottom project about an inch on the front and ends,



End Section of Box.



Bottom of Box, showing Cleats and Holes for Drainage.

and the edges nicely rounded. Beading can also be used effectively for appearance sake. All of these are of little use, however, and only serve to help rot the box. It is much better for the successful growth of the plants to have a plain box as described covered with virgin bark, or even the bark or some of our native trees. The bark should be nailed on firmly. Flat pieces of bark are best for covering window boxes. It may be necessary to run a saw cut partially through the corn bark lengthwise on the inside, to make it more pliable and to make it set closer. The bark of the hard maple, ash, and walnut are particularly well suited for this purpose, especially if taken from a recently felled tree, when the bark is pliable and easily placed in position. The covering of the bark—or bark and moss—as seen in the photos, not only gives the box an artistic and rustic-looking appearance, but also helps

Box Covered With Cork Bark

to prevent the soil from drying out as quickly as it does in a plain wooden box, a point worthy of consideration, especially if the box is to be placed in an exposed sunny situation. Covering the outside with small pieces of split cedar nailed on has a good effect from an artistic point of view, as well as preventing the soil from drying out too rapidly. These are some of the methods by which window boxes can be made more artistic and less crude looking than we often see them, and also give the plants the best possible conditions for successful growth.

SOIL FOR WINDOW BOXES

A good, rich, loamy compost, about two parts loamy potting soil and one part of well-rotted barnyard manure with a little bone meal, makes a good soil for window box plants generally. It is of no use expecting good results in window boxes if poor soil is used. I have found it a good plan to put a sprinkling of bone meal or a thin one-inch layer of well-rotted barnyard manure spread over the soil about an inch from the bottom of the boxes. This serves as a reserve fertilizer when the balance of the soil has become exhausted.

WHEN TO FILL

Window boxes should not be filled until it is about time to place them in position. In fact I prefer filling them after they are placed in position, if possible. Window boxes filled a few weeks before they are placed in position may look better at the time, but long before the season is over they begin to look shabby from the soil having become exhausted and filled with roots, a condition it is difficult to remedy even with the application of fertilizers, or with copious applications of water. Well-grown and well-hardened plants of a good size and appearance, and the box filled at the time of placing in position, will give far more satisfactory results for the season than a box filled earlier that soon gets past its best, even if the changed conditions from indoors to outdoors does not at once have a damaging effect, as it often does on the plants, unless shaded for a few days or placed in a well sheltered position from the sun and wind. Good, rich soil, large, well grown and hardened plants are essentially necessary to have a successful window box. About the first week in June is a good time to place window boxes in position.

HOW TO FILL AND ARRANGE

No other drainage is necessary beyond the holes in the bottom of the box. Fill in soil sufficient to fill box about one-third full. Stand the plants, after they have been knocked out of the pots they are in, in the position they are to occupy, and make sure that you have them in their proper positions before filling in any more soil.

Place the tall plants at the back, and place the drooping and trailing plants in front and ends of box. Then fill in any open or bare looking spots between with medium height plants. In placing the plants in position, due consideration must be given to height and habits of plants as well as color effect, and to have the plants arranged so that height, density and color may be properly balanced and harmonized, without their presenting a stiff formal appearance. The surface soil of the ball of earth on the plants when placed in the box should be about an inch or more below the top edge of the box.

When you are satisfied the plants are properly set and arranged, fill in the soil and pack it moderately firm around the roots of the plants, filling in soil to within an inch of top of box. Give water at once sufficient to moisten all the soil. Afterwards avoid over-watering at the roots for a few days until the plants are established in their new quarters. A sprinkle of water overhead and the plants shaded for a day or two will be beneficial when first planted. When growth has well commenced, water should be given freely every day unless in very wet weather. Give water so that it runs out through the holes in the bottom of box every time the plants are watered.

Towards the end of the season some liquid fertilizer may be given the plants. An application of fertilizer as used for pot plants once a week from middle of July until the end of the season will be beneficial, or a top dressing of rich soil may be applied about the end of July to advantage.

In the autumn many of the plants can be taken out, potted and placed in the window for winter. It is seldom that the box is of any use for indoor decorative purposes without being refilled. Window

Box Covered with Native Bark, Lichens and Fungi

boxes filled with ferns, bulbs or plants in the fall, look very nice, however, in a window in winter.

An article on the construction and management of hotbeds for starting vegetable and flower seeds will appear in next issue.

Planting for Winter Effect in the North*

George Edward McClure, Buffalo

WHEN we contemplate planting for winter effect, the mind turns first to the evergreens, then to berry plants, and to the bright colored branches of the dogwoods and osiers, and so

The Berries of Euonymus Bungeanus

forth, but seldom do we think of the beautiful effect of the winter woods, the persistent foliage of some of the beeches and oaks, which although brown and dry, yet is cheerful in its effect. Little is thought of the beautiful shades of brown, grey and white, in the trunk and branch, or of the variety of the frame work of the various trees, which gives an element of strength to the winter landscape, or to the variety in trees and shrubs, in the delicate tracery of their smaller twigs, as evidenced by some of the birches and alders, and so forth, in the trees, and in the shrubs, by such as *Stephanandra flexuosa*, the coral berry (*Symphoricarpus vulgaris*) and some of the spireas.

DECIDUOUS TREES

Among the deciduous trees which are attractive during winter might be mentioned the American plane or sycamore (*Platanus occidentalis*) which, with its pendent balls of fruit borne high against the sky, seem to take away the barrenness of the deciduous trees, and is suggestive of the Christmas decorations so admired by the young folks, on Christmas trees. While this tree is beautiful in winter, it has also much to recommend it as a fast-growing tree for summer effect. Its beautiful bark, with the irregular patches of green and grey, are also interesting in the winter season. In much the same manner the liquid amber (*Liquidambar styraciflua*) is interesting with its fruit in pendent spiked balls. Its symmetrical form of growth and extremely corky branches are noticeable to those who are only casual observers.

The little shell-bark hickory (*Hickoria ovata*) while suggestive of strength, is also especially interesting on account of its peculiar bark formation, which is unlike any other common species of tree. If planted near the shell-bark hickory and other trees with rough bark the American beech (*Fagus ferruginea*) shows to advantage, as its grey bark is the smothest of any of our hardy American trees and never fails to attract attention from those who seek the beauties of winter as found in our woods. It is also especially attractive in winter as the young trees often hold their dry leaves as do some of the oaks well into the winter.

Among other trees which might be mentioned as being attractive in winter, from the standpoint of their bark coloration, are the yellow branched linden (*Tilia platyphyllos* var. *aurea*), the Babylonian or weeping willow (*Salix Babylonica*) and the white willow (*Salix alba*) with its brownish yellow branches, the white poplar (*Populus alba*) and its fastigiate variety, *Bolleana*, with their grey-green bark, *Acer Pennsylvanicun* with its white striped bark and greenish twigs, the red birch (*Betula nigra*) with its brown bark, and the canoe birch (*Betula papyrifera.*) The white birch (*Betula populifolia*) and the European white birch (*Betula alba*) are the most beautiful white barked trees. Their graceful outlines are one of the delights of winter landscapes, but unfortunately they are afflicted with the birch borer, which, in some localities is so destructive that the culture of the trees has been abandoned. When it is possible for them to thrive, they are charming if planted along with some of the pines, such as the white pine (*Pinus strobus*) and the pitch pine (*Pinus rigida.*) The birches also thrive in sandy soil, which is favorable to the pines themselves. The effect of the white bark against the perpetual green back ground of the pines is to many, more delightful in winter than when the birches are covered with their summer foliage.

THE MIXED FOREST

Excellent winter effects are also obtained by what the forester terms the "mixed forest," which is a mixture of deciduous and coniferous trees. This forest growth is often to be found along the Great Lakes belt, and the effect is often very beautiful. It would be well if we would learn from nature and reproduce these effects in our parks and large estates. While it is out of the realm of this paper to mention fall coloration effects, this "mixed forest" effect is unparalleled when we behold the tints of the maples mixed with the dark green pines, and the impression produced is one that lingers in the memory of the most casual observer.

USE OF EVERGREENS

While we can secure much pleasure from the observation of trees in their bark, twig and fruit formation, yet the most impressive winter effects are largely produced by using the hardy coniferous evergreen with a lavish hand. In this connection it may be said that an infinite variety of evergreens is not necessary to produce fine effects, and while the list of the iron-clad evergreens, suitable for northern climate, is wofully

Euonymus Radicans, var. Vegata

* Extracts from a paper read before the Society of American Florists and Ornamental Horticulturists, at its annual convention at Niagara Falls, N.Y. The information applies to the region of the Great Lakes and locations of similar climate. Many of the species recommended for planting, but not all, may be used in all parts of Canada where hardy plants will grow.

short, yet we have no reason to be disturbed. On larger places the liberal planting of pines and hemlocks for screening unsightly buildings, and checking the force of the winter winds, will have much to do with the successful treatment of the place, for one can better appreciate the subtle beauties of a winter landscape if protected from the force of the icy wind by an effective screen of tall and stately evergreen trees.

The most useful large growing pines for northern planting are the white pine (*Pinus strobus*), the Austrian pine (*Pinus Austriaca*), and the Scotch pine (*Pinus sylvestris.*) The soft effect of the delicate needles of the white pine when young and its stately appearance when old, places it preeminently in the lead, while the larger needles of the Austrian and Scotch pines contrast well and give variety. The only objection to the use of the American hemlock is that it cannot be employed near large cities on account of the smoke and sulphur gases which are always present in manufacturing districts.

In both large and small places, the Douglas spruce (*Pseudotsuga Douglasii*), with its dark green foliage, and the Colorado blue spruce (*Picea pungens*), and its varieties *glauca* and *Kostoriana*, give variety to the winter landscape. For immediate effect, and for filling in between the more permanent pines and spruces, the Norway spruce (*Picea excelsa*) is useful, but as it very often outlives its usefulness at an early age, it is only useful for the purpose of temporary effects.

The mountain pine (*Pinus montana*) is the most useful of the low-growing evergreens for our northern climate and is not out of place on the smallest lawn. When massed at the foot of larger evergreens it is extremely effective. Some of the junipers can safely be employed in the north. By far the most effective of all is (*Juniperus Virginiana glauca*), the glaucous form of the common red cedar. It is much more hardy than the type, and it will thrive in the smoky atmosphere of the city as will no other cedar. Its whitish effect, like that of the Colorado blue spruce, is particularly striking. *Juniperus Chinensis stricta* is also an evergreen of the first rank for the north.

For low planting the savin juniper (*Juniperus Sabina*) is excellent, while *Juniperus communis* var. *nana*, which is still lower in growth, gives us an opportunity to produce an evergreen carpet when it is desired. As a useful, hardy evergreen we cannot overlook the Japanese yew (*Taxus cuspidata*). It is a welcome addition to the list of really hardy evergreens. The American arbor vitæ (*Thuya occidentalis*) in its numerous varieties, is also useful as a northern evergreen, but prefers the shelter given by wind breaks. Its golden variety, *aurea*, is extremely useful as it is really golden, and adds a touch of bright color which harmonizes well with the prevailing deep green of the majority of evergreens.

While the evergreens enumerated, do not include all of the Coniferæ that are hardy along the region of the Great Lakes, yet it does include the very hardiest species. These are sufficient to produce a winter picture, which as far as conifers are concerned, will be effective and leave little to be desired.

BROAD LEAVED EVERGREENS

What is true of the scarcity of the really hardy coniferous evergreens in the Great Lake or northern regions, is still more true of the broad leaved evergreens. One of the very few which is hardy under all conditions is the yucca (*Yucca filamentosa*). When planted in large masses it is a cheering sight in winter, to say nothing of its profusion of bloom in summer. It is doubly welcome, but its value as a winter plant is its chief asset. Even a solitary specimen on the lawn is an evidence of life in the snow.

The best evergreen ground cover is undoubtedly the periwinkle (*Vinca minor*). Its ability to thrive under adverse conditions of light, render it useful for other things besides winter effect. It is an excellent ground cover between evergreens, its cheerful green is not only beautiful to the eye but the plant acts as a protection from deep freezing of the soil. When it is planted in mass in the open, or on the edge of shrub border, in company with *Rosa blanda*, it makes an unique combination, as the brilliant large fruits of the rose borne near the ground and just over the ground work of green vinca, the effect is suggestive of the Christmas season.

Another broad-leaved evergreen which is useful in the northern latitudes, is *Euonymus radicans*, which as a low climber, takes the place of the English ivy. As a creeper it is seen at its best. The sun of February and March often burns some of the upper leaves, but whenever it produces its red berries it is a thing to be desired.

The Japanese honeysuckle (*Lonicera Halliana*), while not considered an evergreen, yet retains its green leaves until long after Christmas in sheltered situations, when used as a trailer, but not when used as a climber, as the leaves are more exposed to frost and wind and are not as persistent. As this plant is used for covering banks in open ravines, and around rocks and boulders, it has a cheery effect on a winter day.

(To be continued in next issue)

Tuberous-Rooted Begonias

John Paine, London, Ontario

WHEN tuberous rooted begonias are wanted for outside planting, start the tubers early in March, in shallow boxes filled with sand, as they require plenty of heat to start them growing. A furnace cellar is one of the best places for this purpose. Water sparingly at first. After they have made about half an inch of growth, put them in good strong potting soil, in five-inch pots and place them in windows facing the south if possible. Water now when the plants require it. By the last week in May, you should have strong plants, just coming into bloom for your out-of-doors bed.

A sandy loam made as rich as you possibly can make it, is the best soil for these begonias. Have the bed if possible, so situated that it will be shaded from the mid-day sun. Make the bed slightly oval. Plant about fifteen inches apart with the top of the tuber a little below the surface of the ground. For support, use strips of shingles about one-third of an inch wide. Take about six of the strips and push them into the ground about half their length around the plant four inches from the stem. The plants will grow upright and remain so through wind and storm. The growth of the foliage will soon hide the support.

Cover the ground of the bed with air-slacked lime, just keeping clear of the begonia stems. When the lime becomes caked, scrape it off and apply more. Do this at least three times during the early part of the season.

During the warm weather begonias require plenty of water. Apply it in the evening.

To keep the tubers for another season, cut the stems off about three inches from the tuber and dig them up after the first hard frost in September, leaving a good sized ball of earth around them. Place in a furnace cellar until the earth about them becomes thoroughly dry. Then remove the tubers and store them in sand in a dry but not too warm a place for the winter. In this way, your loss of them will be less than two per cent. Most of my begonias are of the new frilled varieties, principally singles as I like them best of all.

Photograph your lawn and shrubberies in winter, and send prints for reproduction in THE CANADIAN HORTICULTURIST.

Send photographs of your window gardens to THE CANADIAN HORTICULTURIST for publication and tell how you care for the plants.

What Amateur Gardeners Can Do in February

IF you want to grow the best kind of vegetables and flowers in your garden next year, secure catalogues from the firms that advertise in THE CANADIAN HORTICULTURIST. Read them carefully and make your selections. They are interesting not only for the lists of varieties that they contain, but also for the many excellent cultural directions that they give. It is wise to order early.

The earliest annuals of the garden may be secured by sowing the seed in February. Seeds of verbenas, lobelias, cockscombs, double petunias, sweet sultan and others may be sown in pots or boxes in the window towards the end of the month, for use in window boxes or hanging baskets. For bedding-out purposes, sow seed early in March. Towards the end of the month, sow a few seeds of sweet peas in pots or boxes for planting outside in spring, as soon as the weather and soil will permit.

You will have beets, lettuce, beans, etc., earlier in the spring, if you sow the seeds inside about the last of the month or early in March. When large enough, the plants may be transplanted to a cold frame. If this is not available, transplant to other boxes in the house.

Keep a close watch on the window plants for insect pests. Syringe or sprinkle the foliage two or three times a week with luke-warm water. A weak solution of tobacco applied once a week will be beneficial. Do not have the plants too close to the window at night. Should they become frozen, avoid bringing them into a high temperature. Keep them where it is only a few degrees above freezing. Cover them and keep in the dark for twenty-four hours, or until the frost is out of them. If they were not frozen too severely, they may be saved in this way but keep them away from bright sun-light for a week or two afterwards.

Children's Exhibit of Asters at Flower Show Held Last Summer by Woodstock Horticultural Society

This society is one of the most useful in Ontario. Its work among the school children has been particularly valuable. Last year, 600 packages of aster seed were distributed to them. The president of the society is Mr J. W. Armstrong and the secretary, Mr. W. R. Vroman.

About the end of the month, fuchsias that have been resting, may be started into growth. For further information on how to do this, send enquiries to the "Question and Answer Department" of THE CANADIAN HORTICULTURIST.

If you want to keep your freesia bulbs after flowering, withhold water until the foliage turns yellow, and then give no more. Place the pots in a cellar until next fall, when the bulbs may be taken from the soil and repotted.

A Bed of Cannas and Caladiums

SOME WORK OUT-DOORS

If you have not yet pruned your currant and gooseberry bushes, the work may be done any time during the dormant period. These fruits are quite hardy and will stand more abuse than others.

If your fruit trees have become infested with insects and fungous pests, plan to have them sprayed this spring. It will be too early this month, but you had better plan ahead. If the orchard is small, purchase a knapsack spray pump, but better results would be obtained by the use of a barrel sprayer. To make the expense easier, it would be well to club in its purchase with a number of your neighbors. Consult the spraying advertisements in this issue of THE CANADIAN HORTICULTURIST. Write for catalogues and choose the sprayer that you like best. You will never regret it. In other columns of this issue may be found further information on spraying. This will be supplemented with some excellent articles next month.

A First Prize Garden

In the amateur competition for best lawn and flower garden conducted last summer by the Peterboro Horticultural Society, the first prize was awarded to Mr. Wm. J. Kennedy, of Peterboro. A glance at the illustration will show at the left a border of geraniums and foliage plants. The flower bed at the right hand lower corner comprised geraniums bordered with Madam Saleroi; the one in back ground, cannas bordered also by silver-leaved geraniums.

At the right, not distinctly shown, is a border of asters, petunias, stocks and phlox. These were started in the house in early spring from seed and planted outside in June. Three specimens of cacti adorn one side of the walk. Near the back of the lot is a wire fence with two rows of geraniums in front and a vegetable garden on the other side. The entire garden and lawn was well cared for and presented a pleasing appearance throughout the season.

A Prize Garden in Peterboro

When spring-time comes, take a photograph of your backyard or garden before any improvement is made. Then give the plot as much attention as you can and, when it appears at its best, take another photograph. Send both to THE CANADIAN HORTICULTURIST for publication.

A Garden Effect in Toronto

T. McVittie, Toronto

THE illustration on this page shows a part of the pleasure ground in front of Sir H. M. Pellatt's conservatories, Toronto. The border to the right is planted with a mixed collection of annuals having for a background cannas and *Nicotiana sylvestris*. The annuals used are stocks, Semple's tall-branching asters, zinnias, verbenas, antirrhinums, petunias, French and African marigolds, and so forth, and bordered with tagetes.

The annuals are sown about the beginning of March, in flats in the greenhouses. When large enough, they are pricked out on old hotbeds which have first been covered with a couple inches of rich light soil. After being watered, the sashes are placed over them and kept closed and shaded from the sun until the seedlings get well established, gradually hardening them off by raising the sashes during the day and after a time removing the sashes altogether.

Some Flower Beds and Borders on Grounds of Sir Henry M. Pellatt, Toronto, last Summer

The flower beds to the left are two five-pointed stars, one at each end, planted with verbenas. The centre bed is a maltese cross planted with geranium, Mad. Barney, on a ground work of alyssum.

In the distance can be seen beds of begonias of the semperflorens variety; viz., Erfordi, Vernon and Graceless. These are fine bedding varieties and continue a mass of bloom from June until killed by the frost. They are easily grown from cuttings or seeds, but best results will be obtained from seeds sown about the beginning of February, in flats or pans filled with a mixture of leaf mould and sand and covered lightly with the latter and afterwards placed in a warm greenhouse or hotbed. As soon as they are out of the seed leaf, they should be transplanted into shallow flats in a light mixture of loam leaf mould and sand. When large enough pot them into small pots. If properly looked after they will make nice bedding plants by the middle of May.

About Lilies

Editor, THE CANADIAN HORTICULTURIST:—As you wish correspondence from your readers re. experience in the growth and care of lilies, I desire to say that, having had considerable experience in their growth, the auratums may be successfully grown. My bulbs are planted about 15 inches deep in a partially shaded position and well drained soil. Last season, I had bloom 11 inches across from bulbs that had been blooming for a number of years. They had not been covered the previous winter, although I would recommend a light covering, say, of leaves but placed so that ice would not be formed upon the surface. I have grown *Lilium auratum macranthum* and *L. a. vittatum*, would perhaps prefer the former as a little stronger grower.

My experience with the speciosums is that they may be grown in Ontario. I have had 25 flowers from a single bulb. Fresh manure should not be used. The soil should be very rich with well-rotted manure and if sandy loam so much the better.

Lilium candidum has given me great satisfaction. Can you fancy anything more beautiful than, say, 100 flowers all open at once, shedding a fragrance that cannot be described but which can be known only as a matter of experience. This lily should be planted in August, as in September and October they commence both a root and leaf growth. If bulbs are planted or disturbed in spring or late fall it will mititate against their bloom for the following season.

It is true, Mr. Editor, as you remark, that the lily is amongst the noblest of garden plants. When we consider the great variety of those that are perfectly hardy, there appears to be no excuse for not having them in abundance.—A. Barber, Bowmanville, Ont.

Hints to Amateurs

W. J. Stevenson, Oshawa, Ont.

A fault of amateur gardeners is impatience. Efficiency, beauty and pleasure are often sacrificed for instantaneous results. One who buys a house standing in an arid waste of bricks and mortar, water holes, and so forth, naturally wishes to see it transformed at once.

It is this sudden polishing up of a new garden, that ends in its ruin. It needs both time and thought to carry out the work properly. The attractiveness of a garden lies in its prospective growth of charms, the place being made to develop a constantly recurring succession of features. Economical gardening is remarkable for its simplicity. Some gardens look as well on an expenditure of a small sum per annum as others on which a much larger amount has been squandered. In one case, the strictest economy has been practised; in the other, there may be no end of rarities mixed so indiscriminately as to represent sublime confusion; and curiously enough in some gardens, where expense seems of little object, there is a great absence of order.

Age of Bushes

What constitutes a one-year-old and a two-year-old gooseberry bush from cuttings? If I plant cuttings this spring and take them up the following spring, are they one year old or two years old? Some persons contend that the cuttings are one year old before they are set out.—D. B., Norfolk Co., Ont.

In nursery practice, the age of the bushes is calculated from the time that the cuttings are planted. Bushes from cuttings planted this spring will be one year old the following spring.

Readers are asked to tell their experiences with freesias in the window gardens.

Growing Early Vegetables in the Home Garden

A. V. Main, Gardener to B. Rosamond, Esq., Almonte, Ontario

IT is a great privilege to have a garden and in return we should make the most of it. Whether it be a working man's garden, a private garden or a market garden, earliness in vegetables is appreciated. In this article, we shall discuss the early crops outdoors and not the vegetables produced under glass.

PEAS

For early peas, commence the work the last week of March. Select an early variety, such as American Wonder or Steele, Briggs' Best Early Extra. Fill two or three dozen four-inch pots half full with light soil, placing first some rough leaves in the bottom of the pot. Sow eight or ten seeds in each pot and cover with soil within half an inch of the rim of the pot. Place a label in one of the pots stating the variety and when sown. Give a good watering with a watering-can having a fine rose sprinkler. If a hotbed is not available, place the pots in a warm sunny window.

When the plants sprout and commence to grow, keep the soil moist and give them plenty of light and air on favorable days. Keep the little plants stocky and strong. If the weather is good towards the end of April, remove the pots to a sheltered nook outdoors. Several degrees of frost will do no harm.

When the frost is out of the ground and the soil is dry enough, select a sunny sheltered aspect of the garden for planting. Plant each potful by itself and place them fifteen inches apart in the row. Procure some small branches, preferably dead spruce, and insert them on either side of the peas both for protection and support. With a small quantity of peas, it is a great assistance to support them with branches, or wire netting. Even the small market grower can practise supporting the vines with profit; the peas ripen earlier, they are easier to pick, are much cleaner and yield a bigger crop; it does not involve much labor.

Instead of using pots for sowing, other substitutes can be employed, such as, sowing on sods or starting the seeds in strawberry boxes or in V-shaped boxes. The latter method is excellent. Use two long four-inch boards and tie them together here and there with binder twine and drive a nail (only half way) in every three feet of the box. We have used this method with boxes nine feet long. When planting, the boards will easily sever partnership on the removal of the twine and nails and the roots will be left intact. By following this method of culture, I was able to have good filled peas on the 10th of June last year.

POTATOES

To have early potatoes, choose a reliable early sort that does well in your locality. About the end of March, look up your seed tubers, for if you want a dish of potatoes on the 15th of June, you must have them moving. First of all, procure shallow boxes. These can be easily made. No amateur gardener should be without several of these boxes, in accordance to his requirements, to raise seeds, tomato plants, asters and all his many other garden favorites. It is a great assistance to forward a host of subjects under cover in spring, to achieve earliness and to get the worth of a garden. For instance, we might dig potatoes while the man in no hurry would only be planting. The boxes in question can be four inches deep, two feet long and fifteen inches wide, a convenient size for gardening purposes. The bottom of the box should have the seams between the boards half an inch in size to allow an outlet for water.

Fill these boxes with decayed manure or leaves half an inch in depth. Medium-sized potatoes are best without any cutting. Pack these into the box, keeping the end with the eyes or buds uppermost. Keep the leaves moist and set the box in a warm room, near the light. Strong heat is not conducive to sturdiness; a little above freezing point is excellent. As the growths push up, we thin them to two strong shoots on each potato. Endeavor to have short stubby growth by exposing to a cooler position.

When the conditions outside are allowable, plant in your warmest corner of the garden. Draw out furrows in rows, about six inches deep and two feet apart. Take out your seed potatoes carefully, with all the leaves and roots attached. Put one tuber only every twelve inches and cover with finely broken soil. A dressing of wood ashes over the tubers is beneficial if at hand. Spruce branches are a splendid protection from frost at night or an inverted flower pot or empty box. When the stems are sufficiently high, draw up the earth to them on either side, not necessarily into hills. In whatever locality you may be, the adoption of this method will bring potatoes a fortnight or three weeks earlier. Frost may scare you, but one must risk a little to gain anything.

TOMATOES

The best early tomato is Earliana. Sow the seed from March 10th to 20th in finely sifted soil in small boxes. A hotbed or a well heated greenhouse is better, but not always available. When transfering the seedlings to a larger box for more space, use care in handling them. A maxim in Tomato culture worth remembering is "Keep the foliage dry and the roots moist." Prepare a compost of loam, decayed manure and sand, thoroughly mixed. By May 1st the plants should be strong and ready for re-potting into four-inch pots. Pot fairly firmly and shade the plants for three or four days. Good supplies of water will be required by each pot, whether placed under glass or in the window. Do not put the plants outdoors too soon, allow the pots to get full of roots first. I like also to see the first truss of bloom out; May 25th is generally safe.

It is now that the use of pots gives us a start in the race for early tomatoes. The roots are not broken. We can plant on a sunny day and the plants get no check. Those grown in boxes come out injured and the sun is their torment for some days.

My method is to plant, two and a half feet apart each way, on light soil, not manured. Procure stout stakes five feet long and drive them in on the north side of each plant and secure the plant to this with soft twine. Only allow the main leader to grow up. Almost every week rub out the shoots that spring from the base of each leaf and when the fruit is swelling, it will do no harm to shorten the leaves with a knife. The air and sun must be admitted in unlimited quantities. At this stage, a good mulching of manure is spread all around the plants. Every shower will wash in this surface feeding. Supply the plants with plenty of water.

By judicious disbudding, tying up the plants, hoeing and surface manuring, one can easily obtain fine fruits by the end of July. The secret lies in growing the plants in pots, firstly, and in training the vines to a single stem.

While directing attention to the grower of a small garden, the application of the methods suggested in the foregoing notes would be profitable also to market growers on a large scale. In subsequent issues of THE CANADIAN HORTICULTURIST other vegetables will be dealt with.

Mushrooms

Can a man who is located 200 miles from market make money out of mushrooms in winter?—N. C., Temiscouata Co., Que.

If all other conditions are favorable, I do not think that a distance of 200 miles from market should trouble a mushroom grower very much. In order to be profitable, the crop should wholesale in winter for at least 50 cents a pound; at this price, the express rates would not be proportionately heavy. A more serious problem would be an easily available supply of suitable manure for making the beds. If that is 200 miles away the chances of financial success are small.—Thos. Delworth, Weston, Ont.

The Construction of Irrigation Plants*

W. T. Macoun, Horticulturist, Central Experimental Farm, Ottawa

WHAT seems to be a good system of irrigation and one which is favorably reported upon by some of the correspondents from whom letters have been received, is the Skinner System (The Skinner Irrigation Co., Troy, Ohio). This system provides for both green-house and outside irrigation. It is really a method of overhead sprinkling. For outside use galvanized iron pipes are used to convey the water. These are supported on upright posts high enough to permit of cultivating underneath, or about six feet above ground. In the galvanized iron water pipes are set nozzles about four feet apart or more, depending on the kind of nozzle used, the company supplying nozzles and machine for drilling the pipe to insert the nozzles. The lines of pipes with nozzles are from forty to sixty feet apart, depending on local conditions. The water is applied in the form of a spray through the nozzles and is said to be distributed very uniformly, if the plant is well installed. The company claims that "The initial cost is less than that of any other system of irrigation for an equal area; the power required for pumping is a minimum; no water is wasted, and the entire irrigation is accomplished with a very slight amount of labor." The company informs me, that the average cost of installation is $125 an acre.

Bulletin 87 of the Office of Experiment Stations, Washington, D. C., on "Irrigation in New Jersey" gives more information in regard to the irrigation of vegetables and small fruits in eastern America than we have been able to get from any other source. The following description of a plant used in New Jersey in 1900 should prove interesting. The cost of engines and other items of expense will have changed some since that time, but the difference should not be very material.

"The irrigation practised in the east so far has been on a small scale. Plants capable of irrigating six to eight acres are the rule. In the following paragraphs a small plant recently installed is described in detail as to construction and cost, in order that those interested may determine from the data given whether under their conditions the installation of plants will prove profitable investments.

A PLANT AT VINELAND, N. J.

"The irrigation works of Mr. George A. Mitchell, Vineland, N. J., (Mr. Mitchell's plant is not in operation now. —W. T. M.) consisted originally of 2.5 horsepower gasoline engine, a single-acting force pump and delivery pipe, consisting of a 2.5 inch wrought-iron pipe, and condemned fire hose, and home-made distributing hose of tarred duck cloth. The engine and pump were enclosed in a building near the bank of a creek, a ditch leading the water to a pump. The water was then pumped 693 feet to the highest point on the farm, whence it was carried to different locations in the same manner as is now done. From forty to sixty gallons per minute were pumped.

"The slope from the twenty-foot elevation to the creek and south to Elmer road are comparatively regular, being steep-

The Skinner System of Irrigation

est for about 150 feet each side of the highest point. In the spring of 1899, the engine and engine-house were moved farther away from the creek, a ditch fifteen rods long by two and one-half feet was dug to bring the water to the pump. The water in the creek is raised six to twelve inches by a dam. A No. 2 centrifugal pump was secured with a ten-inch pulley, and set ten feet center to center of pulleys from engine. The three-inch leather belting runs from two and one-half foot fly wheel of engine to pulley on pump. The engine makes 320 revolutions per minute.

THE CONSTRUCTION

"An eighteen-foot length of three-inch pipe is fastened to the pump outlet by means of reducers and is held in a perpendicular position by four guy wires. An elbow with a two-foot length of pipe is fastened to the top of the upright and standpipe. The hose is fastened to this by binding with wire. The hose is the home-made kind hereafter described, and is seven and one-half inches in diameter. The different lengths are connected by inserting a short length of stove pipe into the two ends and binding the hose to the pipe with wire. The large hose is used as the main, and extends 425 feet from the standpipe to the highest point on the farm. The hose is supported by a trestlework, which slopes four feet from the standpipe to the end. This slope is sufficient to cause the water to flow through the hose without any forcing from the engine, and consequently there is almost no pressure tending to burst the hose. For 150 feet from the end of the pipe the hose rests on foot-wide wire netting (chicken wire netting) supported on cedar poles. For the rest of the distance the hose is supported in a trough made from cedar slabs. When the hose was ten to twenty feet above the ground it would have been very difficult to build the trough. Where the hose strikes the ground at the top of the hill it connects wih a distributer of galvanized sheet iron. The large opening of this distributer is about seven inches in diameter and the smaller openings are three inches in diameter. Small hose is attached to the small outlets and the water is taken to the land to be irrigated through this. All the water from the pump, about 150 gallons per minute, can be forced through two openings when so desired. Some condemned firehose that had been used during two years was used as distributing mains. This was laid in such a way as to interfere as little as possible with cultivation, being left in place during the summer and stored in the barn in the fall.

TARRED DUCK HOSE

"The tarred duck hose was made from twelve-ounce duck torn into strips of the desired width and sewed into hose in a sewing machine. A mixture of four parts of coal tar to one part of boiled linseed oil was then brought to a boil and the hose drawn first through the hot tar and next through a clothes wringer. Care should be taken not to allow the hose to touch the side of the vessel when it is hot, as it is liable to scorch the hose. Some of the hot mixture should be poured into the hose, before starting it through the wringer, to cover the inside with tar. The hose should dry two or three days, or better a week or more, before being used."

COST OF PLANT

A statement of the cost of this plant follows: Two and one-half actual horsepower Webster gasoline engine, set up on brick foundation, $160; pump set up, $40; belt and adjustments, $8; 400 feet 2½-inch wrought iron pipe, tees, laying and painting, $45; condemned firehose, 900 feet, with connections, price not constant (approximately), $36; building for engine, trench for leading water to

*A portion of a paper read at the last convention of the Ontario Vegetable Growers' Association. The first instalment appeared in the January issue. The experiences of other growers in the eastern states and Canada will be published in later issues.

pump, various arrangements for distributing water etc., (approximately), $40; total, $329.

SOME RESULTS

A report was published in 1900 by Professor Voorhees, Director of the New Jersey Agricultural Experiment Station, on the results of irrigation for several kinds of vegetables made by Mr. Mitchell. These are herewith summarized. Early Jersey Wakefield cabbage was irrigated three times in 1899.

"The net income from the irrigated quarter of an acre was $20.20 or $80.80 an acre; from the unirrigated, $15.39, or $61.56 an acre. The cost of irrigating one acre of cabbage three times was approximately $2.50. The capacity of the plant was sufficient to irrigate 20 to 30 acres of cabbage; thus the profit from irrigation on 25 acres of early cabbage at this rate would have paid for the plant. The yield was small owing to the character of the soil. The gain was 31.3 per cent. A gain due to irrigation of over 30 per cent. when applied to soil of good character would show much greater profits than in this case."

Foes of Vegetable Crops

T. D. Jarvis, Ontario Agricultural College, Guelph

GARDEN insects may be classified as follows: 1. Plant lice (aphids), leaf hoppers, plant-bugs, and related insects; 2, cutworms and related insects; 3, miscellaneous caterpillars; 4, leaf-beettles; 5, flea-beettles; 6, white grubs; 7, wireworms; 8, grasshopers and related insects; 9, mites; 10, slugs.

Plant-lice (aphids), leaf-hoppers, plant bugs, thrips and related insects all obtain their food by suction. Plant-lice and leaf-hoppers were excessively abundant in 1908, the dry season having been favorable for their multiplication. The best remedies are soap-suds, kerosene emulsion and tobacco extracts; clean culture is also recommended.

CUTWORMS AND RELATED INSECTS

There are many species of cut-worms and it is impossible to give a description to fit all, but the most injurious species are soft-bodied, smooth, cylindrical caterpillars, varying in color from gray to nearly black, many of them being plainly striped or spotted. Cutworms feed only at night, remain in concealment during the day, hiding in the ground or under any rubbish they can find. Poisoned baits are the best remedies against cutworms. Bran mash treated with any arsenical poison such as Paris green or arsenic, two or three ounces to a gallon of water, and about one pound of bran per gallon.

MISCELLANEOUS CATERPILLARS

Naked and hairy caterpillars which are in the main diurnal—the zebra and the corn-ear-worm are smooth and the yellow-bear and the soft marsh are representative of the hairy type. A spray of Paris green or lead arsenate will give good satisfaction for these pests.

LEAF BEETLES

For leaf beetles such as the asparagus beetles, cucumber beetles, potato beetles and blister beetles, Paris green, lead arsenate and clean culture are recommended. Flea-beetles are mostly small insects of a dark color. They have strongly developed hind thighs, which enable them to leap well. The turnip flea-beetle and the melon flea-beetle are familiar examples. Arsenicals, Bordeaux mixture and clean culture are recommended for the control of these insects.

WHITE GRUBS

The parents of white grubs are known as May beetles or "June bugs." The

Scallion Onions the Kind Not to Grow
This is not a disease, but a misfortune

adults attack the foliage of many trees. Fall plowing is the best means of keeping these insects under control. This exposes the grubs to the cold and to the weather agencies. Rotation of crops and clean culture are also recommended.

The habits of the wireworms are very similar to the white grub. They both live under the ground and their natural food consists chiefly of corn, cereals and grasses, but in the absence of these they attack many other kinds of plants. The adults of wireworms are click-beetles. Selection of land for planting, rotation of crops and fall plowing are the most important defensive methods.

GRASSHOPPERS

Grasshoppers and related species are general feeders and are sometimes very destructive in a season favorable to their multiplication. Breaking up their breeding places by plowing up old, dry pasture and stubble fields where they have laid their eggs is recommended.

MITES—(RED SPIDERS)

Nearly all vegetables are attacked by mites. They are very minute animals, usually not much larger than a pin-head. On dry seasons, such as the past, they become excessively numerous and do considerable damage. Flowers of sulphur mixed with water at the ratio of one ounce to the gallon sprayed over the plants is the best remedy.

SLUGS

Slugs are soft bodied arthropods, usually found in moist places. Salt and lime dusted over the affected plants is recommended.

Celery and Lettuce

1. What kind of lettuce is the best for forcing? 2. Is it too late to sow celery at the end of February for fall use? 3. What variety is the best for winter crop? 4. What is the name of the long variety they grow at Kalamazoo, Mich.?—N. C., Temiscouata Co., Que.

1. For a head lettuce, Boston Market is the most popular; for a loose or leafy lettuce, Grand Rapids is best. 2. No, and even a little later will do. 3. According to Mr. Thos. Delworth, of Weston, Ont., there is more celery of the Paris Golden variety grown in Ontario than all the other varieties put together, although some gardeners who grow for winter storage prefer Evan's Triumph or some of the other giant green varieties. Mr. Charles A. Smith, of Lachine, Que., also recommends Paris Golden for general crop. 4. The celery imported from Kalamazoo to Toronto, usually is of the White Plume variety.

Strawberry Culture

Kindly give some information on strawberry culture. I have an orchard of pear trees planted 20 by 16 feet apart. Will strawberries do well between the trees?—J. P. M., Haldimand Co., Ont.

An article on this subject appeared in December issue of THE CANADIAN HORTICULTURIST. If your pear orchard is young, there is no reason why you cannot grow strawberries there. Of course the best soil for pears is not always the best for strawberries; still several varieties of the latter do well on heavy land. Better results are secured from old orchards by giving the trees the sole use of the ground. If you have no other land available, however, strawberries could be grown in the old orchard. This would be done at the risk of appropriating plant food and moisture in the soil that otherwise should go towards the growth and production of fruit on the pear trees.

Our question and answer department was crowded out this issue. Important questions on hand will be answered by mail.

The Canadian Horticulturist

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PETERBORO AND TORONTO

The Only Horticultural Magazine in the Dominion

OFFICIAL ORGAN OF BRITISH COLUMBIA, ONTARIO, QUEBEC, NEW BRUNSWICK AND PRINCE EDWARD ISLAND FRUIT GROWERS' ASSOCIATIONS

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CIRCULATION STATEMENT

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Circulation Statement

January, 1908	7,650	January, 1909	9,456
February, 1908	7,824		
March, 1908	8,056		
April, 1908	8,250		
May, 1908	8,573		
June, 1908	8,840		
July, 1908	9,015		
August, 1908	9,070		
September, 1908	9,121		
October, 1908	9,215		
November, 1908	9,323		
December, 1908	9,400		
Total for the year,	104,337		

Average each issue in 1907, 6,627
Average each issue in 1908, 8,695
(Increased circulation in one year over 2,000)

Sworn detailed statements will be mailed upon application.

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EDITORIAL

REGULATING NURSERIES

At the last convention of the Ontario Fruit Growers' Association, suggestions were passed relating to controlling the sale and distribution of nursery stock. The proposed bill is published on page 39 of this issue. The purpose of this bill is good, but its wording may lead to confusion and probably to trouble. If the fines that may be imposed depend upon whether or not the grower can show a fraudulent intent upon the part of the nurseryman (see Clause 6), then the Act will be almost useless.

It would be clearly impossible, in nine cases out of ten, to prove a fraudulent intent; and it should not be necessary to do so if the fact appears that stock has been sold which is not true to name or that has other defects contrary to the Act. This fact should secure a conviction irrespective of whether the nurseryman intended to do it or not. The loss to the fruit grower is just the same, whether fraud was intended or not. It would seem therefore, that the Act will be more effective if the words in Clause 6, "where fraud can be shown in the substitution of varieties or the sale of stock untrue to name," be changed to read, "where the substitution of varieties or the sale of stock untrue to name can be shown." We would suggest that the Ontario Fruit Growers' Association have this matter rectified before the bill is brought before the Legislature. The public should realize, however, that if this legislation is passed there is a possibility that the nurserymen will have to charge more for their stock. The benefit of having assurance that the stock purchased is reliable would compensate for any reasonable advance in charges by the nurserymen.

ASSISTANCE FOR SCHOOLS

Among the many ways in which the Ontario Agricultural College has benefited the rural communities of Ontario is by the assistance given farmers, orchardists and gardeners in overcoming drainage problems. By sending qualified men to survey farms for drainage systems, the department of physics has done, and promises yet to do, work that is of great value. Equally important work could be done by the department of landscape gardening in the matter of making plans for and laying off rural school grounds. The excellent bulletin recently issued by the Ontario Department of Education, and prepared by H. L. Hutt, B. S. A., Professor of Landscape Gardening at Guelph, which is reviewed in another column, states that the professor will be glad to give school boards and inspectors assistance in any way possible. He is prepared to visit personally any rural schools that may desire his services. It is hoped that many schools will take advantage of this opportunity. The country would be made more beautiful and the ideals of the school children elevated.

The work of visiting applicants, surveying and drawing plans for grounds need not be burdensome on the department of landscape gardening. If the professor has not the time to visit all the schools that apply for assistance, there are always student-specialists in horticulture who would be available. Instead of being a burden the work would be welcomed. It would afford an opportunity for practice in landscape architecture for the student and it would bring that particular department of the college in closer touch with the people.

Instead of requiring school boards to pay a part of the cost of travelling, and so forth, as is done with the farmers, who want their farms surveyed for draining, these services will be given free. Improved school grounds are a public asset. They may make a lasting impression upon the homes of the people of the country. The assistance offered by the college will be the means of rapidly improving scores of school premises that now are a disgrace to the province.

QUEEN VICTORIA PARK

On account of climate conditions, there are more possibilities for horticultural achievement in Queen Victoria Park at Niagara Falls than can be found in any other part of Canada, excepting probably the southern part of the Island of Vancouver. Its situation, its natural advantages and the care given it previous to the present management, made it one of the greatest attractions of our country. Unless competent men are appointed, Canada will soon lose one of her most beautiful features. Carelessness and mismanagement can do more harm in a short time than years of proper care and attention can restore. The effect of mismanagement already is noticed in a marked degree. It should be terminated at once.

Before growth commences in spring (which is early at Niagara Falls), capable gardeners should be placed in charge. There are scores of experienced men in the country whose services could be secured. Practical men are needed at this park, not wine merchants, ex-postmasters, ex-engineers and railroad men. The right kind of men can and will make the park the best on the continent; the wrong kind cannot if they will. The future of the park depends upon quick action on the part of the Ontario Government.

Something should be done to prevent unnecessary destruction of trees on the streets and roads of our cities, towns and country. Beautiful trees that have been growing for ten, twenty or fifty years are destroyed recklessly by telephone and traction companies and by others who do not know what they are doing and do not care. Mr. J. S. Pearce, Superintendent of Parks for London, Ont., refers to this matter in another column of this issue. The government of Ontario and our municipalities should see that this wanton destruction of trees is prevented in future.

Unless the Canadian exhibits at the Royal Horticultural Society's Show get good write-ups in the London papers, there is very little advertising to be got out of the exhibition, as the attendance is not very good. It has been suggested that it would be better for representatives of the provinces to put up a show of their own in some hall in London, during the Smithfield Cattle Show, or other favorable opportunity. Canada would then be free to develop every opportunity that such shows afford for advertising her great horticultural possibilities and resources. Some change is necessary in order to make it worth while to continue sending exhibits to Great Britain.

The illustration on the front cover of this issue of THE CANADIAN HORTICULTURIST was kindly furnished by The Goulds' Manufacturing Co., of Seneca Falls, N. Y. It shows one of the Gould sprayers in operation.

I am always looking forward for the next issue of THE CANADIAN HORTICULTURIST. I think it should be in the hands of everyone interested in fruit growing.—J. W. Hepburn, Kelowna, B. C.

Commercial Spraying

The subject of "Commercial Spraying of Apple Orchards" provoked a lively discussion and was ably dealt with by a number of experienced orchardists at the last convention of the Ontario Fruit Growers' Association. "As an apple buyer," said Mr. Mack Smith, of Burlington, "I always get the best fruit out of sprayed orchards. Most farmers are lax in the matter of spraying. This is due largely to the fact that they sell their prospective output to buyers early in the season. One acre of apples properly looked after will produce as much as 10 acres uncared for. The worst pest of our apple orchards is the codling moth. To control it in my own orchard, I spray and use bandages.

"In an orchard that I have had for about four years, I conducted experiments in spraying and recorded the results. In 1906, the fruit graded 44 per cent. No. 1, 35 per cent. No. 2, and 19 per cent. culls. In 1907 the result was 29 per cent. No. 1, 24 per cent. No. 2, 37 per cent. No. 3, and 10 per cent. culls. During these two years, the spraying was left to hired help and the results were not satisfactory. I decided, therefore, to do the spraying this year in person and the results were as follows: 80 per cent. No. 1, 20 per cent. No. 2, and practically no culls. The main variety in the orchard was Ribston. For an insecticide in the Bordeaux mixture, I use arsenate of lead instead of Paris green believing it to be more effective."

Mr. D. Johnson, of Forest, said that thoroughness in spraying is essential to success. Slipshod methods are of no use. He uses Bordeaux mixture and Paris green. For the codling moth, the chief spraying is performed just after the blossoms fall. Mr. Johnson sprays four times during the season and always sprays with the wind. He stops his outfit three times at each side of the tree so as to apply the material effectively at all angles. Mr. Johnson stated that he has not much faith in the much-lauded "mist spray." He uses a nozzle that will deliver plenty of material. "Our co-operative fruit growers' association has purchased a gasolene power sprayer, which is used in all our orchards. It is equipped with two hose, one to be operated by a man on a ladder and the other by a man on the ground. Ten years ago, my orchard of 25 acres yielded only about 400 barrels of fruit. Since receiving careful spraying and attention the yield has gradually increased until last year 2,800 barrels were harvested."

"We must study the pests that we are to combat and how to control them," said Mr. Jas. E. Johnson of Simcoe, "if we desire to be successful. We must spray thoroughly and at the right time, the latter point being the more important of the two. In handling the codling moth, one day's delay may ruin the whole crop of fruit. Large orchards should have more than one spraying outfit. A hand sprayer will handle from 10 to 12 acres, while a power sprayer is good for only three or four acres more. Spray four times: First, early in spring for fungi; second, when buds are opening for the bud moth; third, when the blossoms fall for the codling moth; and fourth, three or four weeks later for tussock moth." Mr. Johnson's method of spraying and the solutions that he uses were described in the March issue of THE CANADIAN HORTICULTURIST.

Mr. J. C. Harris, of Ingersoll, said that he does not spray until the blossoms are about half fallen. To cover his orchard, it takes about 10 days. He then repeats the operation. He uses Bordeaux mixture and Paris green. Mr. J. C. Caston, Craighurst, referred to the great damage that is being done in some sections by the oyster-shell scale. Mr. J. E. Johnson said that the use of an excess of lime in the Bordeaux mixture will kill it.

Tree Pruning on Streets

Editor, THE CANADIAN HORTICULTURIST:—As I go about the country attending farmer's institute meetings and other business, I see many very sad and deplorable sights along the streets and roadways through the country. The ignorance and want of good judgment displayed by those who undertake to prune the trees on the streets and roadways is deplorable. There is probably no other class of work where so much mischief can be done in so short a time and when done is beyond repair. It would seem as though the Government should take some steps to stop such wanton destruction of the trees on our streets. Those who do this work and those who employ them seem to be oblivious to the fact that when a tree is once butchered and practically ruined, no money can replace it; only replanting and waiting for another to grow again will replace the mischief done.

Time only will set up a tree on or in front of your property. My father often told his sons and many other young men, "Boys, if you want a tree you must plant it and wait for it to grow. You can build a house, a warehouse or a barn in a few months." How true this is and yet how few realize the truth and importance of this fact!

The most serious mischief I have seen done is in the towns; where the trees are too thick, they have cut off the tops or pruned them up so high as to completely spoil them. These should have been thinned out and allowed the others to spread out. Heretofore, trees have been planted both on the streets and roadways in the country much too thickly. Thirty to 40 feet is quite close enough for a city or town and for the country 35 feet. I have seen miles and miles of roadway with the trees planted in each fence corner. This is twice too close and any who have such I would strongly advise to take out every other tree.

Much of the mischief in tree pruning has been done both in the towns and country by the telephone and traction companies' men cutting ways for their wires over and through the trees. In some cases, I have seen the whole side of a beautiful tree cut away; others I have seen with a space cut right through the centre of a tree top. These men should not be allowed to touch a tree on the streets or roadway unless under the direction and supervision of a competent man. These men know nothing and care less about how to cut or prune a tree. The fact is that competent men to do this work are few and far between. There are only two men that I know of in this city that I can depend on to do this kind of work. Every city, town and township should have a competent man appointed by by-law with full power and authority to do this work or supervise it. There is an Ontario Statute giving the municipalities the power to appoint such a person by by-law. This is an important matter and I hope the cities and towns will avail themselves of this Act.—J. S. Pearce, Superintendent of Parks, London, Ont.

Control of Nursery Stock

The sale of nursery stock by nurserymen has not always been satisfactory to fruit growers. The most annoyance has been occasioned through the substitution of varieties. Reliable nurserymen endeavor to give every satisfaction but there are some who are indifferent and careless. A few are absolutely dishonest. To place the two latter classes within control, a committee appointed by the Ontario Fruit Growers' Association presented, at the convention last November, a report on the question in the form of a draft bill, which reads as follows and which was approved by the association:

1. This Act may be cited as "The Nursery Control Act."
2. In this Act the words "nursery stock" shall mean any fruit tree, vine, shrub or plant or any part of any fruit tree, vine, shrub or plant.
3. No person, firm or corporation shall engage or continue in the business of growing and selling nursery stock or act as selling agent, solicitor or otherwise within the province or shall import nursery stock into the province for sale without first having obtained a license to carry on such business in the province (Washington, Sec. 29) as in the Act provided.
4. All nursery stock sold within the province shall be labelled with the true name of the varieties and if imported, with also the name of the place where grown.
5. No person, firm or corporation or agent of such person, firm or corporation engaged in the sale of nursery stock shall substitute other varieties for those ordered without first having obtained the written consent of the purchaser.
6. Any nurseryman or agent of any nurseryman shall be liable for damages in the common courts of the province within 12 months after the trees come into bearing, where fraud can be shown in the substitution of varieties or the sale of stock untrue to name.
7. No contract shall be made by any nurseryman or agent of any nurseryman containing provisions contrary to any section of this Act.
8. The Department of Agriculture for Ontario shall publish yearly a complete list of the persons, firms and corporations engaged in any way in the nursery business, such list to state clearly whether the parties are bona fide growers of stock or agents only.
9. Licenses shall be issued from the Department of Agriculture for Ontario on application and shall be good for one year from date of issue. Such licenses may be suspended or cancelled by the Department of Agriculture upon evidence satisfactory to the department that the holder of the license has sold nursery stock contrary to any sections of this Act.
10. Any person neglecting to carry out the provisions of this Act shall upon summary conviction, be liable to a fine of not less than $..... and not more than $....., together with costs, and in default of payment thereof, shall be subject to imprisonment in the common gaol for a period of not less than ..... days and not more than ..... days.

We learn with regret of the retirement of Mr. James Arthur Richardson from the firm of Woodall & Co., Fruit Brokers, Liverpool, England. Mr. Richardson can claim the honor of being one of the principal pioneers in the apple trade from this continent. He commenced coming out here in 1879 ,and in those days, when good roads were scarce, locating apples and getting growers and dealers to ship was no easy matter. Finally, however, they "caught on," after years of effort, and his firm were by far the largest receivers of American apples in Liverpool. To-day Mr. Richardson has many friends among the old shippers that are now living as well as among the younger ones. His genial disposition always makes him a favorite with those with whom he comes in contact.

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Thousands of "Oshawa"-shingled roofs cover farm buildings, residences, public edifices, churches, all over Canada. They make a roof handsome enough for any building whatever—and it is the most practical of roofs—for the simple reason that an "Oshawa"-shingled roof can NOT leak.

It can't leak because, to start with, it is made of extra-heavy, extra-tough steel, special galvanized. The galvanizing makes these shingles wholly proof against rust—and rust is the only enemy steel has when it's used for roofing. That Pedlar-process galvanizing makes it needless to paint an "Oshawa"-shingled roof. Long years of weather-wear won't show on these shingles. That one item of paint saved—of the need for painting entirely done away with—saves you the cost of an "Oshawa"-shingled roof in the first few years it's on any of your buildings. And just remember—it will be a good roof for a hundred years.

Such a roof is not only rain-proof.

snow-proof, and fire-proof, but it is wind-proof. It makes any building it covers warmer in winter and cooler in summer—because—

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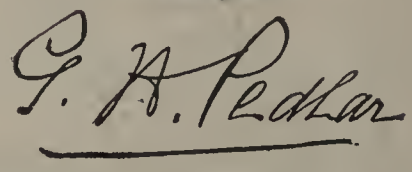

neath, on all four sides—makes an "Oshawa"-shingled roof practically one solid sheet of steel, without a crevice or a crack.

That keeps out the slightest suspicion of moisture—it keeps out the winter

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winds and keeps in the warmth—and in summer it wards off the sun's rays—won't let them get through.

And "Oshawa"-shingled roofs are fire-proof—as a matter of course. How could you set fire to a roof of solid sheet steel? The fire-insurance people will make lower rates on a building protected by "Oshawa" Galvanized Steel Shingles. That saving alone will pay for the roof within ten years.

Some think a corrugated iron roof is fire-proof and about as good as an "Oshawa"-shingled roof. That isn't so. We make corrugated iron roofing—and it's all right for its kind. Nobody makes any better. But corrugated iron isn't the roof for a farm building—nor for any building that is meant to stand a long while. It is a good enough roof for structures that are meant to last only a few years—but only "Oshawa" Shingles are sure to last a hundred years and are good for a century.

Another thing about these shingles:—They make a building lightning-proof—

insulate it far better than any lightning-rod system ever could. Last year lightning destroyed over half a million dollars' worth of farm property. Not a cent of that loss could have happened if the buildings that were struck had been roofed right, which means roofed with "Oshawa" Galvanized Steel Shingles.

Maybe you think the first cost of these shingles is so high as to outweigh all the savings they make and all the merits they have? Would it surprise you to know that you can "Oshawa"-shingle any roof for $4.50 a square. (A "square" means 100 square feet—an area 10 by 10 feet), just about the price of A1 cedar or cypress shingles—and they'll be rotted to dust before even the first ten years of the Pedlar guarantee have passed. An "Oshawa"-shingled roof will outlast ten wood-shingled roofs—and be a better roof every minute of the time, in every way a roof ought to be good.

Anybody can put on these shingles—a hammer and a tinner's shears are all the tools necessary. It is impossible to get them on wrong—you'll see why when you send for a sample shingle and a book about "Roofing Right." Suppose you send for the book and the sample to-day—now. It will pay you to get at the real facts about the right roof.

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ESTABLISHED 1861

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☞ WE WANT AGENTS IN SOME SECTIONS. WRITE FOR DETAILS. MENTION THIS PAPER.

Spokane Apple Show

Edgar W. Dynes, Nelson, B. C.

"The National Apple Show is the best exhibition of its kind that I have ever seen. It is alone in its class and its fruit is of splendid quality," said William Crossley, of Liverpool, England, representing D. Crossley & Sons, of Liverpool, Glasgow, New York, and Boston, after he had looked over the exhibition at the National Apple Show, that was held in Spokane, Wash., Dec. 7 to 12. "I am here representing our firm to find where the best apples are grown and to meet the people who grow them," he continued. "This morning I bought seven carloads of northwestern apples for shipment to New York and Europe. A short time ago we shipped to Europe a lot of Winter Banana apples, some of which reached the tables of King Edward, and were of splendid size and appearance. The Winter Bananas measured two and one-half times the size of the New England Baldwins, which had been customarily going to the Royal table." Mr. Crossley was only one of a number of eastern and European buyers, who were present at the apple show and they all expressed themselves in much the same terms.

The famous, much talked of $1,000 prize for the best carload was awarded to Mr. M. Horan, of Wenatchee, Wash., while Mr. H. M. Gilbert, of Yakima, Wash., was a close second, with a car of Winesaps. The prize winning carload was composed of several varieties, including Winesap, Grimes Golden, Delicious, Esopus Spitzenberg, Yellow Newton, Rome Beauty, Winter Banana, Arkansas Black and Jonathan. The third prize was awarded to a car of McIntosh Reds, from the Bitter Root Valley, in Montana. It might be of interest to mention that both Mr. Horan and Mr. Gilbert, are practically amateur fruit growers, as Mr. Gilbert came from Illinois to Yakima eleven years ago, and Mr. Horan's orchard is only eight years old.

There were no exhibits from eastern Canada, but British Columbia was well represented; that is, from the quality standpoint. Outside of Kelowna the exhibits were rather small and unworthy of what the province can really produce, but Kelowna won enough for all.

At this writing (Dec. 14th), I have not the complete record, but as far as I have been able to learn, Mr. F. R. E. De Hart, of Kelowna, wins in the neighborhood of $5,000 of the $35,000 awarded in prizes. A great deal of credit is due to him and to his assistant, Mr. J. Gibb, for the faithful way in which they carried out their work in connection with the exhibit. They were in Spokane for a full week before the show commenced and left no stone unturned to have their exhibits in the most presentable shape.

Perhaps Mr. De Hart's most important winning was for the best individual display of apples. This called for two boxes, two baskets, two barrels and two jars. The competition was very keen, but the Okanagan man won by four points over Mr. A. France, of Wenatchee, while the Chelan Commercial Club came third. The first prize was $500, and the winner also had the privilege of selling two boxes to a Spokane grocery firm for $25 a box.

Other prizes won by Mr. De Hart were: First for the best 10 boxes of Spy, the prize being an irrigated tract near Spokane, valued at $1,250; first for the best 10 boxes of Jonathan, the prize being an irrigated tract at Hayden Lake, valued at $2,000; first for the best box pack and first for the

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By the leading Vegetable and Flower Growers in all parts of Canada.

Use our Pots for growing Tomato Plants this spring, they are giving satisfaction wherever they are used.

No Rough Edges
Well and Properly Baked
Carefully Selected and Packed
Made in all Sizes and Shapes

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Select Ornamental Trees and Shrubs

¶ The most careful and complete systems of transplantation, combined with the situation of our nurseries, enable us to dig thoroughly hardy, healthy, well-rooted specimens of fruit, ornamental and other trees, plants and vines including "specimens" for street, avenue and park plantings.

¶ Our prices, taking into consideration superior qualities, will be found most moderate and our personal attention is given to all enquiries relating to prices and advice on planting.

E. D. SMITH, HELDERLEIGH NURSERIES: **Winona, Ont.**

(ESTABLISHED OVER QUARTER OF A CENTURY. NURSERIES ETC. OVER 800 ACRES).

best barrel pack. In the best box pack entry all three prizes went to British Columbia people, Mrs. J. A. Smith, of Victoria, coming second and Mr. Herbert W. Collins, of Grand Forks, third.

For the best individual plate exhibit of apples grown by a woman, Mrs. E. Lowe, of Keremees, B. C., took the first prize, which consisted of $50 worth of Burbank's crimson winter rhubarb, and in addition a diploma.

The management of the show are considering the advisability of making it an annual affair. It has been a big success financially and so much encouragement has been given by exhibitors who purpose competing another year that the continuation of the show and making it an annual affair is practically an accomplished fact.

AMBEROL RECORDS *for* *The* EDISON PHONOGRAPH

The greatest improvement in sound-reproducing instruments was made when Mr. Edison invented Amberol Records for the Edison Phonograph

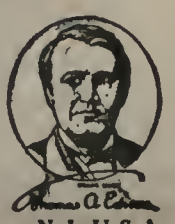
No one thing has added so much to the pleasure of the Edison Phonograph as a Record which plays more than four minutes, and reproduces the melody or voice so clearly and perfectly that the illusion almost defies detection.

Edison Amberol Records are the same size as the ordinary Edison Records. They can be played upon any Edison Phonograph by the addition of an attachment which any dealer can supply and any dealer can affix.

Longer selections are now available for the Edison Phonograph than have ever been available before for any sound-reproducing machine, and these selections are better given.

No Edison Phonograph outfit is complete without the attachment to play Edison Amberol Records.

You can hear these new Records at any dealer's. Learn about the attachment and equip your Phonograph with it today. If you haven't an Edison Phonograph, you can now buy one which plays both styles of Records—the two-minute and four-minute.



We will be glad to send to anyone, however, a booklet describing the new attachment, describing the Amberol Records, giving a list of the music now available on these Records and giving all the other information necessary to make it possible for you to get more than twice as much enjoyment out of your Edison Phonograph as you are now getting.

We Desire Good, Live Dealers to sell Edison Phonographs in every town where we are not now well represented. Dealers having established stores should write at once to

National Phonograph Company, 121 Lakeside Avenue, Orange, N. J., U. S. A.

Improving School Grounds

An excellent work entitled "Improvement of School Grounds" has been issued by the Ontario Department of Education. Its author is Prof. H. L. Hutt, of the Ontario Agricultural College, Guelph. The bulletin is attractive and neat in appearance. It is well-printed on paper of good quality. A number of interesting illustrations show the value of school ground improvement by contrast and comparison and a dozen diagrammatic plans of grounds properly arranged teach the possibilities of this much needed line of effort in rural communities and in towns and cities. The bulletin is a credit to the author and to the department.

In subject matter, it is concise and replete with valuable pointers on the need for and the methods of doing the work that it advocates. In the space given, a wealth of information is imparted, including the location and planning of the grounds, grading and levelling, how to make a lawn and care for it, laying out and caring for walks and drives, planting trees, shrubs, vines, flowers and so forth. The bulletin should be in the hands of all persons who are interested in making our country more beautiful.

Re Fall Bulb Planting

Editor, THE CANADIAN HORTICULTURIST:—The best results in bulb-planting are obtained from buying new Holland bulbs every year as there is much less "bother." But some people like to "bother" about their garden. In that case, it is better to take the bedding tulips up after they have bloomed, leaving them in the beds as long as possible to ripen before planting the summer bedding plants. The beds can then be well dug and fertilized which is very necessary. I take the tulips up by sorts, being careful not to break the tops off and stand them upright in a clump (each color in a separate clump) under the shade of some hemlock and spruce trees, slightly banking up each clump with soil.

In the summer, I spread them out in an airy place under some trees for a few days, then clean them off and sort them into sizes and put them into flat boxes, being careful to put a label into each box. The boxes are then piled, leaving a space between each box (a stick at each end will do this) in a cool, dry, airy cellar until the fall when it is time to plant them again. This is not so much "bother" as it looks to be on paper, but can be easily done at odd spare times.

The later kinds of tulips, such as the Darwins, Gesneriana, Bybloem, Bizarre, Parrot, and so forth, are better planted in the permanent border where they can stand for two, three or four years without being touched, after which they can be treated as above.—A. H. Ewing, Woodstock, Ont.

Making a Hotbed.—The amateur gardener, as a rule, obtains better satisfaction in growing his plants from seed in a hotbed than when he buys the plants already grown. The latest ideas on making a hotbed are published in the 1909 seed catalogue of Dupuy & Ferguson, of Montreal. This catalogue will be sent free on request to THE CANADIAN HORTICULTURIST readers. A splendid silver cup, valued at $25. and $15. in cash prizes are offered by this firm for competition among the members of The Montreal Horticultural Society. Full particulars will be furnished upon application.

Prepared Lime-sulphur

A recent circular issued by the Georgia State Board of Entomology deals with various materials used for the control of San Jose scale. Among them is mentioned a prepared lime-sulphur solution that was used in experiments with good results. Orchardists and others in Canada who have tested this or a similar preparation are requested to tell their experiences with same, through the columns of THE CANADIAN HORTICULTURIST. The following valuable contribution is from the pen of Prof. Wm. Lochhead, of Macdonald College, the pioneer investigator in matters that pertain to the San Jose scale and its control in Canada:

"Regarding the value of the prepared lime-sulphur solution mentioned in circular 8 of the Georgia State Board of Entomology by Messrs. Worsham and Chase, I cannot say much one way or the other, as no experiments, testing this preparation, have been made in Canada, so far as I am aware. I may say candidly at first blush that I am disposed to vote against it, or rather to go very slowly in the matter after all our experiences in the preparation of the lime-sulphur mixture in the early fight against the San Jose scale in Ontario, but my disposition does not affect the Georgia results.

"I remember quite well a discussion at the 1902 meetings of the Entomological Society of Ontario when this question of a prepared lime-sulphur solution was treated quite fully by Mr. W. E. Saunders, Dr. Fletcher, Prof. C. C. James, Mr. Geo. E. Fisher and myself. (See Report Ent. Soc. 1902 pp. 20-21). We were convinced in those days that the lime-sulphur mixture (which is largely a mixture of different sulphides of calcium) was only effective when it was first prepared, and while it was still hot. When the solution cools, crystals separate out; but we cannot stir it up 'nor can we restore it to life by cooking, nor will it stick when it is put on the trees.' (Fisher).

"Mr. W. E. Saunders remarked at that meeting that a sulphide of calcium preparation has been in use in the drug business for a long time as a remedy for skin diseases, and that at the strength it is made no crystals separate out in cooling. We were then under the impression that we knew very little about the properties of the various lime-sulphur compounds, and the chemists since that time have not added materially to our knowledge.

"It is quite possible then that the Georgia preparation is a good one, but it has not been proven to be effective at all times, on all trees, and in all localities. It was tried in February, 1908, and gave excellent results as a spring treatment. More confirmative evidence is needed before it should be given to the public as a safe, cheap and effective remedy for the San Jose scale."

Use Arsenate of Lead.—Many experienced fruit growers are now using arsenate of lead as an insecticide instead of Paris green. They have learned that it is more certain in its results and that it will not burn foliage. The active principle of arsenate of lead is arsenic. Many brands are on the market. The one that contains the largest percentage of arsenic is that manufactured by the Vreeland Chemical Co., Little Falls, N. J. Read what Dr. J. B. Smith, state entomologist of New Jersey, says about it in the following letter to the firm:

"Now as to your material in comparison with others brands on the market; it is infinitely the most effective, because it contains more arsenic than any other brand on the market. In our own analysis your material runs 20.12 per cent. as against 15.34

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NOZZLE

This illustrates the Spramotor Nozzle, Fig. 56, designed to apply lime sulphur mixture. It is made in brass with brass or steel removable discs, or with aluminum cap and body, and brass or steel discs. The particular merit of this type of nozzle is in the large liquid ways that prevent clogging and the double ways being at an angle that gives the most perfect form of spray.

We believe, for the purpose of spraying with lime-sulphur, or any coarse materials under heavy pressure, it will be found unexcelled. Price, by mail, $1.00. Free catalogue for post card.

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Fruit Lands in the Glorious Kootenay Valley
BRITISH COLUMBIA

If You Are Looking For:

A perfect climate.
An ideal home.
Magnificent Surroundings.
A good income upon a moderate capital.
Splendid hunting and fishing.
A healthy and enjoyable life.

ROBSON
Is the Place for You

It is a charming up-to-date fruit growing settlement situated on the Columbia River, near the beautiful city of Nelson, and has special advantages over any other district. Conclusive testimony from actual settlers and high authorities. Wide-awake settlers, after investigating all other fruit-growing districts in B. C. have finally located at **ROBSON.**

For further particulars and full information write for our free illustrated booklet No. 7.

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210 Portage Avenue, Winnipeg, Man. and Nelson, B.C.

Every year each one of us consumes 15 lbs. of salt—Science says.

— More than a pound a-month.

Just as well to have it pure.

Your grocer will tell you there's nothing purer than

Windsor Table Salt

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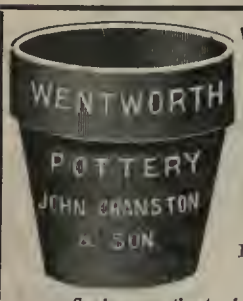

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Hanging Baskets
Fern Pans
Flower Jars

Prompt Shipments
Quality Unequalled
and Prices Right

Send us an estimate of the Pots you will need this season and we will quote Lowest Prices

JOHN CRANSTON & SON, HAMILTON, ONT

per cent. which represents the best of the other brands. Twelve and 13 per cent. is not unusual in other brands, and it means practically that three pounds of your material will do the work of four pounds of any other brand that is on the market at the present time If, therefore, you can produce your arsenate at the same price as the other brands already on the market, it will be cheaper by 25 per cent. than any other."

Read the advertisement of the Vreeland Chemical Co. that appears on another page of this issue.

Enlightened Self-Interest.—People buy and sell with one fundamental object—the hope of gain. It is a matter of self-interest pure and simple and doubtless will remain so to the end of the chapter. In the United States one of the most conspicuous examples of self-interest wisely consulted is the seed business of D. M. Ferry & Co. We do not know how it would be possible better to serve the purchasing public than by their method of supplying annually every local dealer in the country with seeds freshly put up and then at the end of the season removing from the retailer all stocks left on hand, thus preventing the possibility of unfit seeds being carried over for another spring. By regarding primarily the interests of the purchaser, D. M. Ferry & Co. have grown to be the largest seed-house in the world. Learn more about reliable seeds by writing to D. M. Ferry & Co., Windsor, Ont., for their 1909 Seed Annual which is sent free on request.

Form a Potato Club.—How to grow a larger and better crop of potatoes without increasing the acreage is an important subject for potato growers to consider. The farmer who has been growing 200 bushels an acre should strive for 225 bushels in 1909, and even more. Do some thinking on the subject and then invite a half dozen of your neighbors to come to your home some evening and talk it over. Form a "Potato Club." Wonderful results will be sure to follow. Do not set a date for the meeting, however, until you have sent for the 1909 "Iron Age" book, which should be used as a text book at your first meeting. This book, also a copy for each member invited to join the club, if name and address of each party is given, may be had free by addressing Bateman Mfg. Co., Box 516P, Grenloch, N. J. The ladies should be invited, for if they do not take part in the "potato discussion" they can surely spend the evening pleasantly and profitably.

At the meeting of the Quebec Pomological Society, at St. Anne de Bellevue, an editorial representative of THE CANADIAN HORTICULTURIST had the pleasure of meeting Mr. R. B. Scripture, Manager of The Canadian Nursery Co., Montreal. Mr. Scripture has had a wide experience in the fruit business, being junior partner of Messrs. H. J. Scripture & Son, Brighton, Ont., fruit growers and exporters, and having been connected with the well-known firms of Geo. Vipond & Co. and Hart & Tuckwell, Montreal. The Canadian Nursery Co. is advancing rapidly and is now looked on as one of the foremost in its line in Canada. We congratulate them on their good fortune in securing a man of Mr. Scripture's experience as their manager and we bespeak success for them and the hardy northern-grown stock.

I have been a subscriber to THE CANADIAN HORTICULTURIST only since last spring, and have found each number both interesting and helpful.—W. D. Lang, Qu'Appelle Co., Sask.

Cut This Out - - Then Fill It In

MAY we ask a slight favor of you? There are no doubt several persons of your acquaintance who are interested in Horticulture, and who would like to see a copy of **The Canadian Horticulturist.** Will you fill in, on the form given below, the names and addresses of **Ten** such persons, cut it out and send to us. We will agree to send these people free of charge, a copy of the next issue of **The Canadian Horticulturist,** ***and to extend your own subscription Three Months Free of Charge.*** In addition to this, if you are willing to see these people and try to induce them to subscribe, ***we will allow you a generous commission*** on all subscriptions we may receive through your efforts.

Name ..... *Address* .....
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Your Own Name .....
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Will you be willing to see these people and to try to induce them to subscribe for The Canadian Horticulturist? .....

RENNIE'S XXX VEGETABLE SEEDS

RENNIE'S XXX MELTING MARROW PEAS

For thirty-eight years we have tested every known variety of Vegetable Seeds on our extensive trial grounds; and a careful analysis of these tests has proved conclusively that the varieties now offered as **RENNIE'S X X X VEGETABLE SEEDS** are positively the finest possible to procure. Don't waste money experimenting, plant Rennie's XXX and be SURE of profitable results.

RENNIE'S XXX MELTING MARROW PEAS

Closely follows the extra early sorts, filling in the gap between these and the midsummer varieties. Massive pods; robust plants, half dwarf, practically self-supporting. Superb, rich, buttery flavor.

RENNIE'S XXX SOLID HEAD LETTUCE

Immense solid heads, 15 to 16 inches across. Crisp and tender. Perfectly blanched heart. A robust growing, deep rooting, heat resisting and sure heading type. Outer color, pleasing apple green.

RENNIE'S XXX SCARLET ROUND WHITE TIPPED RADISH

The best for outdoor cultivation. Mild, crisp, white flesh; excellent flavor, never strong or rank. Attractive appearance; bright scarlet with distinct white tip which makes a vivid contrast.

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Rennie's XXX Bush Green Pod Bean

First in Spring, last in Fall. Always solid, meaty and tender; entirely stringless Plants thrifty, hardy, early and prolific; bears continuously for several weeks. Pods thick, broad, extra long and quite uniform in shape.

Rennie's XXX Bush Butter Bean

The finest cylinder podded dwarf wax bean. Fine healthy plants, bushy and robust, free from rust or mildew and extremely prolific. Pods, six inches long; solid, meaty and tender, snapping brittle and unsurpassed for flavor.

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Rennie's XXX Bush Green Pod Beans, pkt. 10c., lb. 30c., postpaid; peck, $2.50, 5 lbs. $1.00, lb. 25c., by express, at buyer's expense.
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Rennie's XXX Globe Beet, pkt. 10c., oz. 20c., ¼ lb. 35c., 1 lb. $1.00.
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Rennie's XXX Snowball Cauliflower, pkt. 25c, ¼ oz. $1.10, ½ oz. $2, oz. $3.50, ¼ lb. $12.
Rennie's XXX Table Cucumber, pkt. 10c, oz. 25c, ¼ lb. 60c, lb. $1.90.
Rennie's XXX Early Sweet Table Corn, pkt. 10c, lb. 40c, postpaid; 10 lbs. $2.50, 5 lbs. $1.50, lb. 35c. by express, at buyer's expense.
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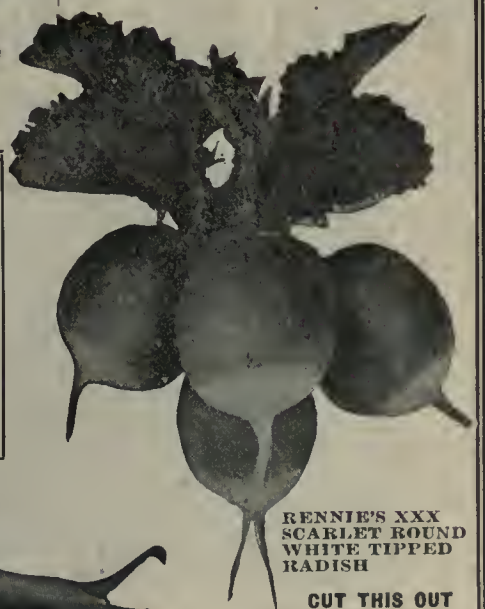
Rennie's XXX Golden Green Flesh Musk Melon, pkt. 10c, oz. 35c, ¼ lb. 90c, lb. $3.
Rennie's XXX Connecticut Yellow Globe Onion, pkt. 10c., oz. 25c., ¼ lb. 70c , lb. $2.50.
Rennie's XXX Connecticut Large Red Onion, pkt. 10c, oz. 25c, ¼ lb. 70c, lb. $2.50.
Rennie's XXX Earliest Sweet Table Water Melon, pkt. 10c, oz. 20c, ¼ lb. 60c, lb. $1.90.
Rennie's XXX Evergreen Curled Table Parsley, pkt. 10c, oz. 20c, ¼ lb. 50c, lb. $1.50.
Rennie's XXX Melting Marrow Peas, pkt. 10c, lb. 40c, postpaid; lb. 35, 5 lbs $1.50, peck $3.75, by express at buyer's expense.
Rennie's XXX Guernsey Parsnip, pkt. 10c, oz. 20c, ¼ lb. 40c, lb. $1.00.
Rennie's XXX Earliest Table Marrow Peas, pkt. 10c, lb. 40c, postpaid, lb. 35c, 5 lbs. $1.50, pk. $3.75, by express at buyer's expense.
Rennie's XXX Scarlet Round White Tipped Radish, pkt. 10c, oz. 20c, ¼ lb. 50c, lb. $1.50.
Rennie's XXX Autumn-Winter Green Hubbard Squash, pkt. 10c, oz. 20c, ¼ lb. 50c, lb. $1.50.
Rennie's XXX Scarlet Oval Radish, pkt. 10c, oz. 20c, ¼ lb. 50c, lb. $1.50.
Rennie's XXX Pink Skin Tomato, pkt. 15c, ½ oz. 35c. oz. 60c. ¼ lb. $2.00.
Rennie's XXX Earliest Round Scarlet Skin Tomato, pkt. 15c, ½ oz. 35c, oz. 60c, ¼ lb. $2.00.



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FREE

to Readers of the CANADIAN HORTICULTURIST

One Packet Enchantress Pink Aster (50 Seeds), price 25c., and One Packet of either the New Spencer Sweet Peas Mixed, price 10c., or the Golden Bantam Sweet Corn, price 10c.—Provided the Coupon printed in bottom right-hand corner of this advertisement is sent with your order.

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One packet Enchantress Pink Aster (50 Seeds), price 25c., and one packet of either the New Spencer Sweet Peas, mixed, price 10c, or the Golden Bantam Sweet Corn, price 10c—Providing this Coupon is cut out and sent to us with your order.

Address all orders to

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Stands without a peer among commercial spray materials for convenience, effectiveness, and the economical control of

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and kindred sucking insects; Apple Scab, Peach Curl, and other Fungus diseases. It has been so extensively used the past season throughout the U.S. and Canada that its efficiency is no longer doubted—it is fully endorsed by State and National experts. It is THE GREAT all around cleaning up spraying material for everybody having to spray. It contains a larger amount of Soluble Sulphur than any similar product.

Send for full description and prices, and your nearest selling agent.

We are also manufacturers of a very high grade Arsenate of Lead—FULLY GUARANTEED—at prices that will surprise you if order can be placed at once.

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absolutely controls one of the worst pests with which orchardists have to contend; non-injurious to trees; is convenient and economical.

Our Orchard, Park, Nursery and Green House Sprayers still stand in a class by themselves and are leaders in their line.

Descriptive Catalog, etc. Free for the asking.

THE NIAGARA SPRAYER COMPANY, MIDDLEPORT, N. Y.

SUCCESSFUL SPRAYING

DEPENDS LARGELY ON THE PUMP USED

The Durability, Capacity, Ease of Operation and the Efficiency of the Agitator are Important Features.

Goulds Hand and Power Sprayers

Have these essential points—they comprise the largest and most complete line on the market. Fruit growers will find it to their interest to send for catalog and to carefully consider the excellent points of superiority of the

"Admiral," "Monarch," "Pomona," "Savelot," "Standard" and Knapsack Sprayers

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HAVE PROVEN THEIR SUPERIOR WORTH for all kinds of work—on the Farm, in the Orchard and Garden, and among all kinds of fruit. Built for every known use where a Sprayer is required. POWER COSTS NOTHING.

Built of BRASS working parts, piping, and connections.

High pressure carried easily, and continuously, and yet permits of stopping at each tree to thoroughly spray it.

Hundreds in use in Canada, U.S.A., New Zealand and other countries, and NO FAILURES.

Write for information, and state what fruits you have; or if it is wanted for use on Potatoes, Strawberries, &c., or for killing Wild Mustard.

I also supply Gasoline Engine Sprayers, and Hand Outfits, as well as all kinds of accessories; and "Target Brand" Insecticides & Fungicides, Weed Killer and Asphaltum Oils (for laying dust.)

W. H. BRAND, Jordan Station, Ontario

NOTES FROM THE PROVINCES

Nova Scotia

R. J. Messenger

Some new and important ideas were advanced at the annual meeting of the Nova Scotia Fruit Growers' Association that seem worthy of notice even at this late date. Mr. F. C. Whitman, of Annapolis, in dealing with transportation of fruit, made the statement that apples could stand frost almost down to zero, provided they were kept in motion. He had teams bringing apples a distance of 20 miles in very cold weather without freezing. He had demonstrated that apples would keep much better in hot cars or steamer holds if they were well wet with cold water. He had washed carloads down with a hose and had cooled off the air very materially.

A discussion on thinning of fruit in summer resulted in the appointment of several of the best fruit growers to give thinning a trial in their orchards and to report results at next annual meeting.

Mr. W. T. Macoun's excellent address on "How to Increase the Yield of Our Orchards" brought out the following points: That cultivation should not be prolonged too late in the season since checking the wood growth while the fruit buds for the following year were forming, had a tendency to give more vitality to the fruit buds. It was a well known principle that wood growth was generally made at the expense of fruitage.

Anything that checked the downward flow of sap in a limb or tree would result in increased fruit; e.g., grafting, since the place of union checked the flow of sap and so increased the yield of the graft. Partly girdling a limb, as a part fracture or barking of a limb, also had the same result.

A lively discussion took place on the address of Mr. R. J. Graham, of Belleville, Ont., who went to some trouble to prove that on our export of 600,000 barrels, Nova Scotia was losing $140,000 by using the small barrel. We had to us more barrels and pay more cooperage, freight, and so forth, while they brought less per barrel in the English market, since the buyers went by the number of pounds in the package. The arguments seemed plausible, but they were argued from the shipper's and buyer's standpoint and not from that of the producer.

About eight years ago the Nova Scotia Government began setting out so-called model orchards in different parts of the province. The man on whose farm the orchard was planted agreed to care for it according to directions given by the Government for 10 years, when it became his property. It was considered at this meeting that the government, according to this agreement, was releasing its supervision just when the most important period of the tree's life was beginning; that if these were to be an object lesson or a test as to whether orcharding could be successfully carried on in these districts, expert supervision should be extended for a larger period.

Annapolis Valley, N.S.

Ennice Watts

The recent cable advices from England report the apple market firm with prices ranging from 22 shillings for Baldwins to 26 for the finer varieties.

The past season, has also been a good

FOR SALE AND WANT ADVERTISEMENTS

Advertisements under this heading inserted at rate of two cents a word for each insertion, each figure, sign or single letter to count as one word, minimun cost, 25 cents, strictly cash in advance.

GARDENER—Seeks situation, age 26. Ten years' experience with Vegetables, Fruit and Flowers in first-class English gardens; good references.—ERNEST FANE, West Essa, Ontario.

STRAWBERRY PLANTS FOR SALE—Twelve standard varieties. First class, well rooted plants, $2.50 per 1,000; 40 cents per 100, post paid. Send for list. Ontario Nurseries, Wellington, Ont.

STRAWBERRY AND RASPBERRY PLANTS, Seed Potatoes. Send for list. Mention this paper.—R. C. CRYSLER, St. George, Ont.

Northern Grown Trees

Apple, Pear, Plum, Cherry, Peach, Grapes, Small Fruits, Deciduous and Evergreen Ornamentals, Roses, Flowering Shrubs, Climbers, etc. Specialties: Mammoth Dewberry and Wismer's Dessert Apple. Catalogue Free: it tells the whole story.

J. H. Wismer, Nurseryman - Port Elgin, Ont.

VREELAND'S
ELECTRO ARSENATE OF LEAD

HAS NO EQUAL

Spray your Orchard and Field Crops with the Strongest and Safest Arsenical Insecticide

25 % STRONGER

Than the Best Other Makes. It won't burn.

The average per cent. of Arsenic and Water is printed on the Label—20 % As_2O_5 - 40 % Water

RECOMMENDED BY THE BEST AUTHORITIES

Kills Potato Bugs, Codling Moth, Tussock Moth, Canker Worm, Elm Leaf Beetle, Tobacco Worm, and all other Leaf Eating Insects

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one for cranberry growers. In western King's county, more bog land is being cleared and broken up for the purpose of making new cranberry beds. Since the advent of the gathering scoop, pickers have had to come down in their prices, which makes it possible for growers to extend their areas. Several cranberry specialists are abandoning the practice of flooding their bogs in winter which they claim to be unnecessary. At the close of each season, it is almost impossible to buy cranberries in the locality where they are grown as they are shipped as soon as possible.

Very little is going on in the horticultural line this month. In some places rhubarb is being forced in dark cellars for shipment to town and, as so little is grown in this way, it is fairly profitable. Lettuce is also grown under glass.

The season for root grafting has arrived. Apple tree seedlings which have been packed in bundles in sawdust in the cellar are now brought up and each root is cut in two and fitted with scions, thus making two trees. Usually one person grafts and a second binds with strips of waxed cloth which are kept pliable with a warm brick on the stove. As soon as possible the grafts are re-packed in the sawdust, where they remain until the ground is workable, when they are planted close together in nursery rows.

Montreal

E. H. Wartman, Dominion Frnit Inspector

In my recent tour of inspection between Montreal and Kingston, I was pleased to note that very few boxes and barrels were dishonestly packed. One instance showed No. 1 Spys not keeping. Adjoining this decayed lot was another brand or pack of the same variety and practically from the same district which was firm from top to bottom. In the latter case, the fruit had been handled carefully and no fallen apples had been put in; therefore, the buyer was well satisfied as $1 a barrel profit could be easily made. In the other case, there would be $1 a barrel loss. The lots packed by co-operative associations were very satisfactory. One firm in Montreal had purchased several cars since the close of navigation and could send them out to their customers with great assurance.

I have met many farmers having small orchards who tell the same story that apples were a poor crop. One said that he usually has from 25 to 30 barrels of Spys for sale, but this year had only three. However, as good apples are selling from 40 to 50 cents a peck, small stocks will fill the demand.

The man who predicted 25 years ago that apples would be so cheap in 1908 that they would not be worth gathering made a miscalculation. The other man who planted 25 acres of Spys, G. Russet, Blenhim, Baldwin and similar varieties on the north shore of Lake Ontario, between Kingston and Toronto, and cared for them is a lucky fellow. There is room yet for new orchards, but be careful in the selection of varieties and be prepared to look after the wants of the trees.

British Columbia

M. J. Henry

New settlers are coming in by the thousand from every section of the world, buying and clearing up land to prepare it for spring planting. They are paying $150 to $250 an acre in the bush which costs from $200 to $300 an acre to clear it suitable for planting.

This means that a man must have a capital of $5,000 to $10,000 to start any kind of a fruit ranch near any of the cities. He has to live on his capital until he can get an income from his land which, in the case of fruit trees, means several years, but by growing vegetables and small fruits between his fruit trees he will begin to realize some money from it in two or three years.

The old settlers who took up the land from the government years ago are the ones who are "living in clover" these days.

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The Canadian Horticulturist

Vol. XXXII MARCH, 1909 No. 3

The Best Varieties of Fruits for our Orchards

ONCE more the season for planting is near at hand. To know what varieties of fruits are best to plant in our orchards often is a vexing question. Some varieties that have been profitable in the past are gradually dropping out of favor. The market to be filled and local conditions of climate and soil are the chief factors in determining the selection. Experienced orchardists in all parts of Canada have kindly sent to THE CANADIAN HORTICULTURIST lists that they recommend for their provinces and particularly for their own localities. In this issue, varieties suitable for planting in Ontario and eastern Canada will be mentioned; in the March issue, those suitable for the prairie provinces and British Columbia.

NOVA SCOTIA

For Nova Scotia, the following varieties are recommended for the Annapolis Valley by Mr. R. J. Messenger, of Bridgetown: Apples—Gravenstein, Ribston, King, Fallawater, Blenheim, Baldwin, Golden Russet, Spy, Nonpareil, Stark, Ben Davis (?); pears—Seckle, artlett, Clapp's Favorite, Anjou, Louise Bonne, Bosc; plums—Red June, Coe's Golden Drop, Magnum Bonum, Lombard, Green Gage; peaches—Early Canada, Early Rivers, Elberta, (all very little grown); raspberries—Cuthbert, Herbert; gooseberries—Downing and other leading American varieties; currants—leading varieties; strawberries—standard sorts.

For the eastern part of the province, the following varieties are mentioned in the order of their popularity by Mr. Percy J. Shaw of the Agricultural College, Truro: Apples — Wolf River, Wealthy, La Rue (Baxter), Stark, Duchess, Scott's Winter, Transparent, Ben Davis.

NEW BRUNSWICK

For New Brunswick, the following varieties are mentioned by Mr. John Ferguson of Murches': Apples—Transparent, Duchess, Wealthy, Fameuse, Wolf River, McIntosh Red, Bishop Pippin, Scott's Winter, Bethel, Talman Sweet, Golden Russet; plums—Green Gage, Wheaton, Yellow Egg, Lombard; strawberries—Crescent, Sharpless, Splendid, Senator Dunlop, Williams, Glen Mary; red raspberries—Cuthbert, King; blackberries — Eldorado; gooseberries — Downing; currants — Cherry, White Grape.

Mr. J. C. Gilman, of Fredericton, offers the following selection: Apples—Red Astrachan, Duchess, Dudley Winter or North Star, Wealthy, Alexander, Wolf River, Fameuse, McIntosh, Bishop Pippin or Yellow Bellflower, G. Russet; plums—Moore's Arctic, Golden Prolific, Lombard, Green Gage; cherries—Early Richmond; currants—Red Dutch, Fay, Versailles, Cherry, White Grape, Black Naples; strawberries—Crescent, Warfield, Senator Dunlop, Splendid, Glen Mary, Bubach, Sample; red raspberries—King, Herbert, Cuthbert, Golden Prolific; blackberries—Snyder, Taylor, Agawam, Wachusett Thornless; gooseberries—Downing, Pearl Houghton.

A Grand Paper

Editor, THE CANADIAN HORTICULTURIST:—You are to be congratulated on the excellence of THE CANADIAN HORTICULTURIST. You are developing a grand paper; in fact, the best one of its kind that I know of.—W. S. Blair, Professor of Horticulture, Macdonald College.

PRINCE EDWARD ISLAND

For Prince Edward Island, standard sorts that do well in most parts of the province are given by Mr. John Johnston of Long River as follows: Apples,—Crimson Beauty, Yellow Transparent, Red Astrachan, Duchess, Wealthy, Alexander, Wolf River, Stark; pears—Clapp's Favorite, Bartlett; plums—Saunders, Moore's Arctic, Victoria, Lombard, Damson; cherries — English Morello, blackberries—Snyder, Agawam; currant, — Cherry; gooseberries — Downing, Houghton; strawberries—leading varieties.

QUEBEC

For Quebec, the following varieties are recommended by Mr. J. C. Chapais of St. Denis for his county, Kamouraska, which is one of the most northern points where fruits are grown in that province (north latitude 47 degrees 30 minutes): Apples — Early Strawberry, Yellow Transparent, Lowland Raspberry, Red Astrachan, Duchess, Alexander, Wolf River, Fameuse, Wealthy, Longfield; pears—Flemish Beauty, Vermont Beauty; plums—Early Yellow, Saunders, Blue Damson, Reine Claude de Montmorency, Lombard, Geuii; cherries—Early Richmond, Montmorency, French cherry; gooseberries—Downing, Houghton, Columbus; currants—Fay's Prolific, La Versailles, White Grape, Black Champion, Black Naples; raspberries—Marlboro, Golden Queen, White French; strawberries — White Alpine, Lovett, Williams, Sharpless and other hardy standard varieties.

ONTARIO

For Ontario, the most satisfactory varieties for general planting, according to Mr. J. W. Crow, Ontario Agricultural College, Guelph, are as follows. Apples—Duchess, Alexander, Wealthy, Snow, R. I. Greening, Baldwin, Spy, Ben Davis; pears—Clapp, Bartlett, Duchess, Kieffer; cherries—Richmond, Montmorency; peaches—St. John, Early Crawford, Fitzgerald, Elberta, Smock, plums—Burbank, Bradshaw, Shipper's Pride, Grand Duke, Reine Claude; grapes—Moore's Early, Delaware, Lindley, Concord, Niagara.

The standard varieties of small fruits recommended by Mr. Crow are, in blackberries—Agawam, Snyder; red raspberries — Marlboro, Herbert, Cuthbert; black raspberries—Hilborn, Gregg; purple raspberries — Columbian, Shaffer; black currants—Lee's Prolific, Naples, red currants—Cherry, Fay, Victoria, gooseberries—Pearl, Red Jacket, Whitesmith; strawberries—Van Deman, Bederwood, Splendid, Senator Dunlop, Sample, Williams.

A list of varieties more or less similar to the one recommended by Mr. Crow is the choice also of Mr. P. W. Hodgetts, secretary of the Ontario Fruit Growers' Association. A few additional sorts are mentioned by Mr. Hodgetts as follows: Apples—Gravenstein, McIntosh, Blenheim, King, Hubbardston, Stark; pears,—Boussock, Howell, Bosc, Clairgeau, Anjou, Winter Nelis, Lawrence; cherries—Wood, Knight, Napoleon, Tartarian, English Morello; peaches—Brigdon, Reeves; plums—Red June, Geuii, Lombard, Monarch, Yellow Egg; grapes—Campbell's Early, Worden, Wilder, Agawam, Vergennes.

Do not have too many varieties in the commercial orchard.

The Apple Leaf Blister Mite*

Prof. W. Lochhead, Macdonald College

THE apple leaf blister mite is an old enemy under a new guise. It has been known for many years in Ontario as a pest of the pear, but it is only within the last few years that its injuries to the leaves of apples in Ontario have been observed and have become worthy of serious attention. In Europe, however, this pest has for a long time been observed on apple leaves.

The leaf blister-mite is not a true insect; it belongs to the group called *Acarina*, and is known to science as *Eriophyes pyri*. It is a very minute creature about 1-125 inch in length, hardly visible to the naked eye. It has four legs and a worm-like body divided into a large number of rings by fine lines, and provided with a few pairs of stiff hairs. For the main facts regarding its habits, I am indebted ot Professor Parrott of the New York Agricultural Experiment Station, Geneva, N. Y., who has made a special study of this mite and many others of the same group; and who has very kindly given me the latest information he has obtained in his investigations of a different subject.

LIFE HISTORY

The leaf blister-mites feed by sucking the juices of the buds and leaves. They pass the winter under the scales of the buds, frequently in colonies. In spring, as the young leaves unfold the mites move out upon them, and soon burrow through the skin of the underside, and feed upon the juices of the soft tissues within. Through the irritation produced by these operations galls or blisters are formed. Within these galls eggs are deposited which hatch in a few days, and the young mites feed on the juices of the leaf. When mature they pass out of the leaves through openings made on the wider surface and betake themselves to other leaves to repeat the same process. Throughout the growing season the production of mites continues, and not until October do they desert the leaves for the buds, where they hibernate.

NATURE OF INJURY TO LEAVES

As already stated, the main injuries are those done to the leaves, but the fruit-stems and fruit are often injured. The galls on pear leaves are at first greenish, then reddish, afterwards bright red, and finally, with the death of the affected tissues, brown or black, often most conspicuous on the sides of the midrib. When the mites are very numerous the injuries produce defoliation of the trees.

The color of the galls on apple leaves is much less striking than that on pear leaves. The galls are usually more abunant on the margins of the leaves and are at first greenish, soon becoming brownish, and only occasionally red. The coalescence or merging together of several of the galls produce irregular shaped dead areas, which often rupture at the margin. Parrott says: "About July 1st the most striking effects of the mites upon the leaves appear, especially if there is much yellowing of the foliage, as frequently occurs. Upon the upper surfaces of such leaves the mite-infested spots are of a light brown or of a dark green color, and are uniformly brown beneath. These spots are thickly massed, forming a dark broad band of irregular width along each side of the leaf, which contrasts conspicuously with the intervening light yellow area about the main rib. To one standing on the ground and viewing the leaves from beneath, this striping of the leaves is very suggestive of variegated foliage of certain ornamental plants."

REMEDIES

Cultural methods are of little value in dealing with this pest. Careful pruning will, of course, remove large numbers of the mites, but it will not exterminate them. I believe Professor Gillette, then of Michigan, first suggested in 1886 the use of strong soap suds, kerosene emulsion during the dormant season as a means of control on pears. In 1890 Professors Comstock and Slingerland of Cornell University, published (Bulletin No. 23, C. U. Agr. Exp. Sta.) the results of some experiments with kerosene emulsion in the control of the blister mite on pears. In 1893 Professor Slingerland published (Bulletin No. 61, C. U. Agr. Exp. Sta.) the results of successful experiments using kerosene emulsion. He said: "Our experiments strongly indicate that the pear leaf blister can be nearly exterminated in a badly infested orchard by a single thorough spraying of the trees in winter with kerosene emulsion diluted with from five to seven parts of water."

All these experiments had to do with the leaf blister-mite on pears. In the attempt to deal with the same pest on apple trees, however, it was found a more difficult task. The Geneva station has made many experiments. In Bulletin 283, published December, 1906, the following recommendations are given, based on spraying operations carried on for two years:

(a) Whale oil soap solution not effective.

(b) Miscible oil (one part to twenty of water) effective.

(c) Kerosene emulsion (one part to eight of water) effective. Two sprayings are better than one, but if only one is practicable, make the application in early fall as soon as possible after the leaves have fallen.

(d) Kerosene pure, effective, but fruit crop lost.

Since the publication of Bulletin No. 283 the experiments have been continued, and new ones added; and, as a result of two more years' work, Professor Parrott informs me in a letter dated October 22nd, 1908, that in a bulletin soon to be published, he will recommend strongly the lime-sulphur wash applied in the dormant season just before the buds burst.

*Since this paper was prepared and read at the last convention of the Ontario Fruit Growers' Association, the bulletin referred to in the concluding paragraph has been published. Extracts from it may be found on page 62 of this issue.

A Lesson in Grafting

The accompanying illustration of a Pewaukee apple tree grafted on crab stock, teaches a lesson. It shows that vigorous growing varieties should not be grafted on slow growing stocks. The top will outgrow the stock and in time may break off. The tree illustrated measures five inches in diameter below the graft and eight inches above. The top in this case is not nearly so large as many others of the same variety in similar conditions.

Pewaukee Apple Grafted on Crab Stock

This tree is in the orchard of Mr. A. E. Sherrington, of Walkerton, Ont. It has been in bearing about fourteen years and has produced yearly crops of first-class fruit.

Top-graft your apple trees in spring. The best time is when the leaves are pushing out. Wounds made then heal quickly, and the scions are more apt to live. If a large amount is to be done, it is necessary to start earlier.

Fungous Diseases of Ontario Orchards: Peach Yellows*

M. B. Waite, Pathologist in Charge, Investigations of Diseases of Fruits, U. S. Department of Agriculture

THE cause of the peach yellows is unknown but it behaves precisely like a parasitic disease. It is contagious, spreads through the orchard from colonies or from individual trees which become centers of infection and is distributed from tree to tree and orchard to orchard by natural methods unknown to investigators. In all respects, therefore, it acts like a parasitic contagious disease.

Up to the present time, all microscopic and bacteriological methods of investigation have failed to reveal any parasites. Investigations along these lines have been wholly negative although they have been pursued with great persistence and thoroughness. It seems almost certain that had it been an ordinary germ or bacillus, the methods employed would have revealed the same. It is hard for me to believe that the disease is not a parasitic disease, however, and that some day the parasitic organism will be found. The failure to find the cause of the disease or any definite parasite associated with it puts this discussion of peach yellows on a different plane from that of the ordinary fungous or bacterial diseases of plants. However, by comparison with definitely known germ diseases, such as pear blight, and with a general knowledge of physiology and pathology, we may be able to steer clear of false theories and make the most of the facts available.

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SYMPTOMS OF YELLOWS

The most reliable symptoms of peach yellows is the prematuring and red spotting of the fruit. Another symptom almost equally certain is the bushy or wiry twig growth often resulting from premature pushing of lateral buds. Diseased trees, more or less promptly assume a sickly or yellow color in their foliage. The leaves often have a peculiar roll and droop. After the second year the twigs and branches begin to die back and the tree gradually dies from the top down, ordinarily becoming totally dead at four or five years from the appearance of the first visible symptom.

The leaves on trees affected by this disease usually turn yellow rather promptly. This results in the common name of the malady. However, frequently when the trees are first attacked and the fruit decidedly red spotted and premature, on the whole tree or on certain branches, the leaves, instead of yellowing, become even darker colored and larger than normal. That is to say, when the yellows first attacks strong vigorous trees, it sometimes stimulates the tree, both fruit and foliage, before it begins to weaken it. This may even hold true the second year in some cases. The twig growth is shorter on such trees. They behave like trees on which summer pinching of terminal buds is practised. Ordinarily, however, especially on trees under average cultivation, the yellowing of the inside leaves begins as soon as the premature fruit appears. Sometimes these leaves are distinctly rolled upward toward the mid-rib and droop and curve inward by the bending of the leaf stem and mid-vein. This symptom is more or less variable just as the presence of the yellows sprouts may or may not be prominent.

OTHER CAUSES OF YELLOWS

Many other causes produce yellowing or discoloration of foliage. These other yellow effects need have no relation whatever to the yellows and, of course, occur on most all trees and plants, whether thy are affected by the yellows or not. Some of the principal causes of yellowing of the foliage of peach trees, in addition to borers and frost girdling, are starvation or poverty of the soil, particularly nitrogen starvation, the fungous root rot, sour soil, root aphis, the root knot or eel worm disease, root winter killing and various other root troubles. These diseases, except the fungous root rot, are all more or less curable and non-contagious and, of course, should never be confused with the true yellows. A yellow peach tree, therefore, does not necessarily mean a tree affected by peach yellows.

RELATED DISEASES OF YELLOWS GROUP

Two other diseases should be mentioned in this connection as they belong to the same general group as the yellows. They are the "little peach" of the northern states and peach rosette of the south.

(To be continued in next issue.)

*The fourth instalment of Mr. Waite's address on "Fungous Diseases of Ontario Orchards," given at the last convention of the Ontario Fruit Growers' Association.

Use a Manure Spreader

Editor, THE CANADIAN HORTICULTURIST: Regarding the use of manure spreaders in orchards and vineyards, I would say that before purchasing a spreader we found it a very laborious task shaking manure from a wagon. On considering the time used and the present high price of labor, we decided to purchase a spreader. We considered the matter over and decided that a forty-bushel capacity was plenty large enough for two horses to handle, as three horses could not be worked among trees in a vineyard very well. This size of a machine being shorter in the gear, was more convenient to turn at the ends of the rows than a larger machine. We are well satisfied with our choice.

We find that our manure goes a great deal further, besides being pulverized finely and spread evenly, also being easily worked into the soil without plowing it in. I consider this a great advantage and saving of fertility, as you may quickly dispose of your manure before it has time to dry out or evaporate in the sun. I also consider that the manure being applied in this manner, that is, spread finely all over the ground so that the numerous feeders of trees and vines may readily avail themselves of it, is the correct way to apply manure.

If a man has, say, sixty loads of manure or over every year, a manure spreader is a good investment, and as much necessary an implement as any on the farm. It would also be a good investment for two growers or farmers living close together and not having such a large quantity of manure to handle. A manure spreader properly housed when not in use and used intelligently should last almost as long as a wagon.—Wm H. Secord, Homer, Ont.

In spraying, the more distant the tree or plant to be treated, the coarser must be the spray.

As all good spray machinery is expensive, only careless operators will neglect its proper care.

Window Boxes, Hanging Baskets and Rustic Stands*

William Hunt, Ontario Agricultural College, Guelph

ANY aspect rather than a direct south aspect is best for a window box, a north or east aspect being the best. If the windows face the south, the box should be shaded by an awning for a few hours in the hottest part of the day. In a window facing the south and fully exposed to the direct and concentrated heat of the sun against the building the greater part of the day, it is impossible to have complete success with a window box, even if filled with the hardiest sun-resisting decorative plants.

POT PLANTS IN BOXES

Plant lovers, especially in cities and towns, are often at a loss to know what best to do with house and window plants in summer, having no space out-of-doors perhaps to stand the plants in the shade for a change and rest. By placing the box outside of an east, north or west window, standing the pots in the box (arranging the plants properly for effect) and packing moss around them, almost all house and window plants can be very much improved in appearance, with but little care and attention. The moss prevents a too rapid evaporation and keeps the roots of the plants cool and moist. Common moss from the bush or sphagnum moss can be used for this purpose. This is a much better plan than standing the pots on window sills and exposed verandahs, where the sun and wind compels constant and copious waterings, the plants oftentimes suffering badly even when attended to regularly, in the matter of watering.

VERANDAH BOXES

Verandah boxes are made in a similar manner to window boxes, differing possibly in shape, so as to suit the requirements of the position they are to occupy. If used on the floor of the verandah, it is well to set the boxes in large trays or pans made of galvanized iron, to prevent rotting the floor, as well as for cleanliness.

HANGING BASKETS

The ordinary earthenware hanging basket should have the bottom constructed so as to form a saucer, in order to avoid the troublesome, unpleasant, and dangerous operation of either lifting the basket down, or of flooding and damaging the floor of the verandah every time they are watered. Several potteries have adopted the style of having a saucer as part of the basket, but in most specimens that I have seen, the saucer is rather too narrow and shallow to be of the best possible use. The holes through the bottom of the basket into the saucer placed there for drainage purposes, are also often too small and too few in number to fully serve the purpose for which they are intended.

For a lawn and exposed position, I prefer hanging baskets made of wire. As a rule, the ordinary wire baskets sold are not deep enough to be serviceable. The wire basket should be lined at time of filling with thick wads of moss placed round the basket with green side outward. The soil and plants can then be filled in the same as when using an earthenware basket. The moss helps to conserve the moisture in the soil and prevents a too rapid evaporation. Plants succeed better in wire baskets than in earthenware ones and should be more used than they are, if only for this reason.

Rustic Stand for Plants and Flowers
Bottom of an apple barrel, fifteen inches deep, covered with native bark

RUSTIC STANDS

Rustic stands are one of the most effective and easily obtained features of lawn decoration. A rustic stand can be made of the crudest and commonest materials, if a little artistic and original taste is made use of in connection with their make up. A tub part of a barrel or a box of suitable strength and size can be transformed into a really pretty and effective rustic adornment with a few pieces of common lichen or moss-covered pieces of bark from our native trees nailed around them; or can be covered with cork bark, if something more uncommon or elaborate is required. Small pieces of cedar saplings split in two with the tops pointed so as to represent a rustic picket fence and nailed on the tubs also makes a pleasing and effective stand for the lawn.

One of these rustic tubs or boxes placed on a piece of round timber of pine or any native tree, with the bark left on so as to look as natural as possible, will make a very effective and pleasing object placed around the lawn or grass plot, when filled with flowers and trailing plants. The piece of timber used should be sunk into the ground a little, if not large enough to stand firmly of itself. The box or tub also would be better if fastened down to the stand with a piece of wire in two or three places to prevent it being blown or pushed over.

Fossil stones, or large rough stones, can be used very effectively as stands for above purpose. An old hollow trunk or pollard of a basswood or other tree, about two feet six inches in height, also makes an effective rustic adornment when filled with good soil and plants. One of these last named filled with scarlet salvia and trailing plants makes a most conspicuous and pleasing object on the lawn in summer time.

Rustic stands can be purchased at most of our large feed stores in several designs. The ordinary wire stands are not very ornamental and not suited for pot plants out-of-doors, especially in an exposed sunny position, as the plants dry out too rapidly in them. If these stands were constructed so that moss could be packed around the pots, they would at least have the merit of being useful, if not ornamental.

IRON VASES OR STANDS

Many of the iron urns or stands one sees on lawns are of themselves quite ornamental, but are expensive and not at all adapted to grow plants in successfully. The basin or urn is usually too shallow to allow of sufficient soil to grow plants in. Iron also being a conductor of heat, the soil dries out very rapidly. A deeper basin, eight to ten inches in depth—according to size of urn—and the sides made perpendicular instead of sloping, and more holes in bottom of basin for drainage, are desirable points to make iron lawn vases a success for growing plants in. The basin could have a temporary lining of thin wood fitted around inside. This would prevent to a great extent the rapid drying out of the soil and be very beneficial to the plants.

CEMENT VASES

Lawn vases made of cement with pieces of stone or fancy pebbles placed all over the surface—so as to present a rough, natural-looking surface, also make a very effective lawn decoration filled with plants.

*A continuation of Mr. Hunt's article that appeared in the February issue. The best plants for filling window boxes, etc., will be dealt with next time.

Planting for Winter Effect in the North*

George Edward McClure, Buffalo

ONE of the chief delights of a winter garden is the effect of the berried shrubs and trees, and of course we always think of the berried plants in relation to Christmas, and very naturally of the holly that is so extensively used at that time. The northerner is denied the use of this most regal plant, but whenever evergreen leaves and red berries can be combined, it is regarded as the highest perfection of winter effect.

A few years ago I conceived the idea of using the winter berry, or leafless holly (*Ilex verticillata*), which is far more profuse with its berries than the southern holly, along with the English privet (*Ligustrum vulgare*), mixing the two kinds and planting in masses. The privet retains part of its green leaves until January and has splendid trusses of brilliant black berries, and the effect of these black berries and green leaves, with the dense masses of red berries of the leafless holly, give the effect that is obtained in English gardens by the famous holly plant. The ilex is vigorous, as also is the privet, and the whole in time becomes a tangled mass and the effect glorious. Sometimes the leafless holly is planted along with the mountain laurel, but as the laurel is low and the ilex high, the green leaves and berries are not together, and the effect not as good. Even though it is not always possible to secure a background of green for berried plants in the winter, it is not always desirable as the snow itself is a sufficient background for many berried plants.

Celastrus Orbiculatus

*The first installment of this article appeared in the February issue. It will be concluded in April.

Among the most common and best of our berried plants are, the common barbery (*Berberis vulgaris*), with its racemes of brilliant berries which remain well into the winter, and the Japanese barbery (*Berberis Thunbergii*), with its single yet thickly borne berries of as brilliant a hue. The high bush cranberry (*Viburnum opulus*), whose bright and large trusses of berries last until the new leaves are formed in the spring and are very striking. Many of the endless number of forms of cratægas are useful for winter effect, and though their fruit are not persistent during the entire winter season, yet many are glorious in the early winter. The sea buckthorn (*Hippophæ rhannoides*) is also attractive in winter because of its yellow black dotted fruit, which is very persistent.

Many of the roses are extremely beautiful, as their fruits are often large. One of the best is the Japanese rose (*Rosa rugosa*), whose large haws or berries are highly colored and remain long on the plant to brighten up the landscape. *Rosa multiflora*, whose fruits although smaller, are borne in large clusters and last all winter. *Rosa lutescens* has the largest fruit, some of which are one inch long, and are borne in clusters of four. *Rosa blanda* is also useful.

The privets, both the common (*L. vulgare*), and the Japanese (*L. Ibota*), have large clusters of shining black berries, and are very striking with a background of the snow. The snow-berry (*Symphoricarpus racemosus*), with its profuse masses of white berries, and the coral berry (*S. vulgaris*), are both splendid species for effective winter planting. When planted in masses in richly prepared borders, they produce riotous masses of fruit. The European buckthorn (*Rhamnus cathartica*), so often used for a windbreak, has attractive black fruits, as has also *Rhodotypos kerrioides*. The stag horn sumach (*Rhus typhina*) produces a marked effect in a winter landscape with its antler-like dense clusters of berries. The smooth sumach (*R. glabra*) is also useful as a winter fruited plant.

The European mountain ash (*Sorbus Aucuparia*), with its bright red berries in large clusters, is especially useful for winter effect, and the yellow berried form is also useful for variety. With an evergreen background they are especially attractive. Among the vines for winter effect nothing can surpass the bitter-sweet (*Celastrus scandens*), with its winter array of orange berries, when the vine is allowed to grow as a shrub, forming an uneven mass of twining stems, covered with attractive fruits it is particularly fine. *C. orbiculatus* is also a splendid berried vine similar to the bitter-sweet. *Vitis Heterophylla*, whose grape-like clusters of whitish-blue berries offer a variety in berry color, is also interesting from the standpoint of winter effect.

Elaeagnus Umbellata

Simplicity and dignity should be the key-note of all landscape gardening.

Take a series of photographs of your garden from planting time until fall and send them for publication in THE CANADIAN HORTICULTURIST.

Wooden labels may be preserved by soaking them in a strong solution of copperas (sulphate of iron) and laying them, after they are dry, in lime water. By this process, a very insoluble salt, sulphate of lime, is formed in the wood.

Trees and Shrubs for Saskatchewan*

Angus MacKay, Superintendent, Experimental Farm, Indian Head

IN the early years of the Indian Head Experimental Farm, very few trees or shrubs except the native varieties were found hardy enough to stand the climate, while at the present time there are a great many, with proper cultivation, will succeed in any part of the province. In addition to the quite hardy sorts, there are many nearly hardy ones that kill back very little, and will in time be numbered among the successful varieties.

For eight or ten years the American mountain ash killed back to the ground. Now, every year they blossom and fruit, and the trees are among the most beautiful on the Farm.

A list of the hardy trees and shrubs suitable for the province may be found at the conclusion of this paper. This does not include the half-hardy, which number nearly as many. [NOTE.—This list will be published in a later issue of THE CANADIAN HORTICULTURIST.—*Editor.*]

A Winter Scene in Saskatchewan

TREES

Among the trees that are being most extensively grown throughout the province are, box elder (native maple), ash, elm and cottonwood. Box elder is grown chiefly on account of its being easily propagated, and not from any good quality in appearance or usefulness except for windbreaks. Ash is also easily propagated from seed, but has the advantage over the maple in giving little trouble after planting, and in making a useful tree in time.

Elm is more difficult to grow than maple or ash, from the fact of the seed being smaller and more subject to injury from various causes. It is one of the best trees, however, and the one that will in time win the most favor.

Cottonwood, which is chiefly obtained from river bottoms in the Dakotas, but which can be propagated from seed or cuttings, is found better adapted to the dry climate than many of the other varieties of poplar, and as a quick grower is unsurpassed.

The Siberian poplar is one of the best of the Russian varieties. Like the cottonwood, it is a quick grower.

Willows are not sought after except for hedges or windbreaks, for which they are well adapted.

So far little has been done in growing the birch tree. The native variety is easily grown and is a beautiful tree when a few years old. Among all the trees on the Farm, none can compare in beauty with the cut-leaved birch which has stood for years in the arboretum.

The mountain ash is grown from seed, of which it produces large quantities, and as already stated, is one of the most beautiful on the Farm; in fact, in this respect, it is only surpassed by the cut-leaved birch.

In the conifers, all those mentioned have done exceedingly well, but are not being grown throughout the province on account of the difficulty of propagation and the slow growth for several years, as well as the great loss in transplanting.

Among the most successful are balsam fir, Scotch pine, white, Norway and Rocky Mountain spruce, and the larch or tamarac. The cedars are exceedingly slow growers.

SHRUBS

Among the hardy shrubs, caragana, honeysuckle and lilac are having the largest distribution. In the three families, a good many varieties are found, especially in the lilacs.

Caragana arborescens is the most useful sort in the caragana list on account of being better suited for hedge purposes, and flowering equally with the others when planted singly.

The Tartarian honeysuckle when in bloom is one of the most beautiful shrubs imaginable and, as it fruits abundantly and is quickly and easily grown from seed, it should be on every homestead in the province.

While caragana and honeysuckle should be in every garden, the place is not complete without the lilacs, of which there are varieties almost without number. In addition to being a beautiful shrub, the lilac makes a hedge unsurpassed by any other plant for the length of time it is in leaf during the year, it being out the earliest in the spring and the last in the fall to lose its leaves. Cornus or dogwood, cotoneaster, flowering currant, spiræa, and high-bush cranberry (native) are well worthy a place alongside the caragana, honeysuckle and lilac.

*Part of a paper read at the convention of the Western Horticultural Society, held at Winnipeg, in February.

Sowing Seeds of Annuals

Roderick Cameron, Toronto

If it is desired to sow seeds of annual flowers in a hot-bed to get the plants early, prepare the manure at once; it should be turned over twice before making the bed. Do not make the bed high. A foot of manure is plenty, and it should be ready by the first of April, then place in it from four to six inches of good friable soil. Put on the sash, but give plenty of air until April tenth, when the weed seeds will be all started. Stir the soil now so as to kill the weeds.

Open shallow drills six inches apart, north and south across the bed, by pressing a lath on the soil. Here sow the seeds desired and cover in proportion to the size of the seeds. The very fine ones may be sown on the surface, and afterwards pressed down with the flat side of a board.

There may be strips of brown paper stretched over the rows inside the frame until the seeds show above ground, when they must be taken away for the light to reach the plants. If the sun is bright at this stage, shade the glass during the hottest part of the day and give air night and day unless very cold. The plants may be thinned out and replanted some other place when large enough to handle.

By the first of June these plants should be ready for the open ground. At this time, place your fingers on each side of the row, press them down through the soil, lift one, two or three plants, and as much soil as will stick to the roots, and press hard in the hands into hard balls about the roots; this operation is simple if the soil contains the proper amount of moisture. When each variety is thus finished, place all these balls, containing the roots back into the soil, and shade a little. In a few days the balls will be matted together with roots, and they can be handled the same as if they were grown in pots, and will make better plants, and there will be no wilting.

What Amateurs Can Do in March

MAKE preparation for next season's work. A good start means a good finish. Order seeds and have them ready when sowing-time comes.

Prune late flowering shrubs but leave the early flowering ones until they have bloomed. Hardy roses may be pruned towards the end of the month.

If not protected now, cover the border plants and bulbs. The greatest danger is from alternate thawing and freezing in spring. If the ground is still frozen, cover with some strawy manure held in place by branches of trees. Remove the covering as soon as danger of severe frosts is past.

FLOWERS INDOORS

If you are growing your own bedding plants, their propagation and potting will

A Day-Blooming Cereus

At residence of Mr. J. T Rose, Brantford, Ont,

now be occupying your time. Strike in sand, cuts of fuchsias, geraniums, verbenas and so forth.

Sow seeds of nasturtiums for window boxes. A few pots or boxes of petunias, verbenas, cosmos, salvia and lobelia may also be sown. Towards the end of the month sow antirrhinum, scabiosa and aster. Six to eight weeks before it is time to start plants in the open is about the right time to sow most seeds inside.

Divide your cannas and pot them or place on benches to start them into growth. They will be fairly well advanced for planting out-doors about the first of June.

Bring hydrangeas, oleanders and similar plants to the light. Re-pot geraniums, cyperus, ferns and other plants required for summer decoration. Give the flowering bulbs plenty of water. The soil must not be allowed to dry out.

THE KITCHEN GARDEN

It is time to start the hot-bed. If your sashes and frames are not in good order make repairs at once. Read the article on page 58 of this issue.

You may have rhubarb earlier than usual by placing a barrel or box, from which the top and bottom have been removed, over a clump of rhubarb in the garden.

WITH THE FRUITS

This is the best time of the year to graft fruit trees. Make the trees that are now yielding poor fruit, produce the variety that you most desire.

Prune fruit bushes. Thin out all kinds of fruit trees and head back the peach, plum and pear. Prune and train the grape vines.

If you are not certain of the best thing to do in regard to any garden operation, take advantage of the question and answer department of THE CANADIAN HORTICULTURIST. Enquiries are welcomed.

Root Killing

W. T. Macoun, Central Experimental Farm, Ottawa

Root killing is caused by the exposure of roots to severe frost and by the alternate thawing and freezing of the roots. It is most prevalent in winters when there is little or no snow. It is of very uncommon occurrence in Manitoba and the north-west provinces and in the states of Nebraska, Iowa, Minnesota and Dakota. Roots are in many cases tenderer than the tops and are killed when the tops remain uninjured. As the soil in the province of Quebec is usually moist in the autumn and further drying out is usually prevented by a covering of snow, root-killing does not often occur, there having only been three times during the past twelve years when there was such injury. This infrequency of root-killing is, however, liable to make fruit growers careless, and a time comes when an orchard is just in its prime when the trees are swept out by root-killing to the owner's great disappointment and discouragement. What, then are the preventives of root-killing?

At the Central Experimental Farm, Ottawa, many trees were root-killed in the winter of 1895-6, a winter when there was little snow. At that time cover crops were not used to any extent and the soil at the farm was bare. Since that time great care has been taken to have a cover crop in the orchard before winter sets in. This cover crop in itself protects the roots of the trees from drying-out and helps to hold the snow for further protection. While the roots of trees in sod are protected by this sod and may not be killed when those under cultivation are, it may happen that in same cases the soil is so dry under the sod that if there is no snow the roots may yet be killed. The mulching of the ground about trees with straw or manure will also protect the roots from injury.

Another reason why we have not been troubled with root-killing during the past twelve years at Ottawa is that practically all our trees have been since that time grafted on crab apple roots, not on *Pyrus baccata*, although some are on this stock, but on the seedlings of Martha, Transcendent, and other cultivated varieties. The apple seedlings used by nurserymen for stock vary much in hardiness. Every tree probably differs more or less and some are undoubtedly quite tender. The result is that varieties otherwise hardy, when grafted on these roots fail. Seedlings of the crab apples are much more likely to be hardy. If some nurseryman would make a specialty of growing the apples suitable for the province of Quebec on crab apple stocks, he would in time sell a large number of these trees. The advantage of crab apple roots has been very marked in the north-western states where trees on ordinary apple stocks have been killed out, while those in crab roots were uninjured.

The Culture of Orchids

For the private gardener, the use of baskets for orchids would give better results than earthen pots or pans. The baskets allow the air to circulate freely about the roots and prevents an over-abundance of moisture. The most essential quality in orchid culture is an abundance of fresh air.

If the private greenhouse has ample top ventilation, the ventilators should be kept open at most all times in the summer months. Side ventilation may be used, but top ventilation is preferable. The former seems more apt to absorb the moisture in the house which is a decided requisite to the orchid.

Orchids should receive an abundance of light, but the strong rays directly upon the plants might prove injurious. For shade, some growers use shade rollers on the outside of the glass or cheese-cloth beneath the glass. If the outer side of the glass is whitened with a combination of white lead and kerosene oil, the strong light will be prevented from striking the plants and at the same time they will receive sufficient good light.

Orchids should be watered with care. They require an abundance of water during the growing period, but too much should not be applied at one time as it would tend to rot the roots. Readers of THE CANADIAN HORTICULTURIST are asked to tell their experiences in the culure of this beautiful flower.

Make a water garden this spring.

The Twelve Best Hardy Shrubs

J. McPherson Ross, Toronto

IF I were confined to the choice of but one shrub to plant, I should select *Hydrangea paniculata*, as it blooms at the season of the year when all the other shrubs are out of bloom and then it is so hardy, so easily grown, and gives such a wealth of lustrous cherry white plumes of flowers from August to November. Were my choice extended to two, the other would be *Spiræa Van Houttei*, so lovely and abundant is its snow white mantle that hardly a leaf can be seen through the flowers, and its habit is so graceful. My third shrub would be the Japanese golden bell (*Forsythia suspensa*), which is one of the earliest

A Variety of Shrubs that Grace the Grounds of an Estate near Niagara Falls

shrubs to flower, the blossoms appearing before the foliage. The proper situation for it is by the gate or entrance path, although it is a beautiful object wherever planted. My fourth shrub would be *Wiegelia rosea*, an old favorite, neat and graceful in habit and a profuse bloomer of rosy pink bell-like blossoms.

My fifth choice is the althea or rose of Sharon and, although it is sometimes killed in winter, yet by planting it in rather poor soil so that it ripens its wood well before frost, it usually blooms sufficiently to give satisfaction. It blooms in August. My next shrub is the Persian lilac. My seventh is the garland syringa, a well-known hardy favorite whose fragrant showy white blossoms with their strong orange perfume scents the garden. The eighth choice is *Cydonia Japonica*, whose vivid blossoms have given it the name of the burning bush. This shrub stands clipping well and is useful to make a hedge. Its foliage is glossy green and its scarlet blossoms in May always make it a garden favorite.

The ninth choice is the beautiful deutzia, either *D. scabra* or *D. arenata*. These are lovely shrubs and no collection is complete without some of them. For small places or cemetery plots, *Deutzia gracilis* is a charming free flowering small shrub. My tenth shrub is the purple berberry which is most effective in the bloom of its foliage with charming panicles of yellow small blossoms in spring followed by dark crimson clusters of berries. My eleventh choice is the purple fringe or smoke tree. This is quite an unique shrub in many ways. The foliage is glossy and rather singular in shape while the bloom is in panicles of cream bronze tint of feathery or misty character, sometimes called Jacob's beard. When in full bloom it is very attractive. To complete the dozen, and for the sake of its fragrance and yellow bloom, I select the flowering currant (*Ribes aurea*), an old-time hardy favorite that will flourish in any situation or out-of-the-way corner.

The foregoing twelve hardy shrubs might not be the choice of every one but taking the flowering season into consideration, this selection will cover it pretty well with a sufficient divergence of growth, foliage and flower to make them of value in any collection. A further selection will be mentioned in a later issue of THE CANADIAN HORTICULTURIST.

The Mock Cypress

T. McVittie, Toronto.

The illustration on the front cover of this issue of THE CANADIAN HORTICULTURIST, is a view of the centre walk in Sir H. M. Pellatt's vegetable garden, Toronto, with the stables, coach-house, automobile shed, and so forth, in the background, built after the old Norman style of architecture, and when completed will be one of the finest on the American continent.

On each side of the walk is planted a row of mock cypress (*Kochia scoparia.*) This pretty, half-hardy annual was transplanted from self-sown seed. Many of the plants were over three feet in height and five feet in circumference, forming compact bushes which make a very effective and ornamental hedge. The small feathery light green foliage changes as the summer advances to a deep green and to a crimson hue in the fall. The beauty of the kochia is very often destroyed by overcrowding when planting.

To grow for pot culture, the seed may be sown in March, giving the same treatment as for balsam or other similar annuals. They should be given good drainage, if intended for pots, as they are sometimes very slow in germinating.

For outdoor culture, the seed may be sown in April, and the seedlings planted out about three feet apart by the end of May, taking care to keep well watered until established in the ground where they are to remain for the summer.

To have a good lawn, the ground must be rich and well-prepared.

Division of the root is the only way to perpetuate any particular variety of columbine with certainty.

Do not attempt to manage a garden that is beyond your time and means. Better a small garden and a good one than a larger one, half-kept.

A corm differs from a bulb in that it is solid throughout while the latter may be composed of narrow and mostly loose scales, as in the lily, or of more or less continuous or close-fitting layers or plates, as in the onion. The gladiolus and crocus are familiar examples of corms.

How an Amateur Grows Asters

W. Norman, Elmira, Ontario

THE aster is one of the grandest flowers and one that is largely grown. In its culture, one great fault with amateur gardeners is that, as soon as the first warm days of spring arrive, they get the gardening fever and begin to sow seeds in pots or boxes in the house. There is nothing gained by this, except perhaps a few days earlier bloom. In the majority of cases, the result is poor, weakling plants with only a few mediocre flowers. Our aim should be to strive for the best.

About the last week in April or the first week in May, choose some spot close to a south wall, and fine the soil well. Obtain a box, say, eight inches high, and knock out both the top and bottom leaving the sides. Sink this in the soil, one inch at the back and three inches in front to form a slope. Cover the top with factory cotton to protect from winds and sun. Sow your seed thinly in this and when up an inch high thin the plants out to stand three inches apart every way. You will then have strong sturdy plants that will be a delight to handle.

To transplant, make a hole with a pointed stick, fill the hole with water and when this has soaked in, put in your plant, bed it in firmly and then cover with dry soil around the stem leaving no sign of moisture. Do not water again. It is one of the amateur's greatest mistakes to use too much water. Leave the result to nature. Keep the surface soil loose and again do not water. When your plants are about three parts grown, it is well to mulch around and between the plants with some well-rotted manure. Trim off a few of the side shoots and your bed will be a delight to you and will show what the aster is capable of doing if properly handled. If you desire to show for exhibition, leave only three or four of the finest buds on each plant.

If a plant seems sickly and you have no other to replace it, take it up carefully, shake the soil off the roots, and you will probably find the latter covered with a small white maggot. Get some boiling water and dip the roots in and out as quickly as possible, fill the hole with boiling water and when cool replace your plant. Step it in firmly, shade for a day or two and it will probably be all right again.

If you desire to own the best asters in your neighborhood, save your own seed. Select the very best bloom, then strip off the plant all other blooms and buds, thus sending all the strength of the plant into the flower selected. You will have noticed that from a package of seed with the same soil and treatment you get good, bad and indifferent plants. The reason is that commercial growers grow aster seed like flax, and so forth, by the acre, consequently what can you expect? Pick off all flowers as they fade. This will prolong the flowering life of the branches.

Irrigation for Vegetables and Small Fruits

IN almost any season there are periods when if water could be applied to growing crops of vegetables or small fruits it would improve them. Whether or not it will pay to irrigate in Ontario and eastern Canada, depends largely upon the availability of the water supply, the kinds of crops being grown, and the nature of the soil and of the season. In recent issues of THE CANADIAN HORTICULTURIST were published extracts from Mr. W. T. Macoun's excellent address on this subject given at the last convention of the Ontario Vegetable Growers' Association. In the course of the address, Mr. Macoun said: "I leave the question of whether it is practicable to irrigate or not with our vegetable growers, who are intelligent enough to know when and where it will pay them." The following interesting letters sent to Mr. Macoun may aid in answering the question:

AT LEAMINGTON

From Mr. J. L. Hilborn, Leamington, Ont., Nov. 3, 1908: "There has never been any irrigation practised here. I am the only person who has used water to any extent outside, and I have done it only in a small way. For about ten years I have had a 200-barrel tank elevated about twenty-five feet; have pipes laid through greenhouses and two leading out twenty rods or so where I grow chiefly cucumbers, but we pour the water on through an inch hose, using about twenty barrels an hour for three or four hours, say, three times a week, and in that way getting once over them each week. We have to do it in this way to get best results as we do not like to begin until about five o'clock p.m. I use a windmill chiefly; when necessary, I attach a gasoline engine.

"One of my neighbors uses a gasoline engine to raise water from the lake, for use chiefly in greenhouse and cold frames. We have both tried applying it with the hose on strawberries, which is very satisfactory in a small way."

GUELPH AND BURLINGTON

Mr. A. McMeans, O. A. C., Guelph, Oct. 31, 1908: "No one in this locality practises irrigation. We have given some thought to the subject and are planning to install one-quarter to one-half an acre next year with the Skinner system.

"When in Ohio this summer, I visited Storr-Warner Co., at Lodi, where they grow 100 acres of celery on muck land, tile drained into a creek that runs along one side of the celery field. If the weather is dry they dam the creek and the water backs up the tiles, thus using the tiles for sub-irrigation in dry weather and for drainage in wet weather; it is giving excellent results.

"Mr. H. R. Rowsome, of Burlington, Ont., this year irrigated two acres of celery, with a two-horse power gasoline engine, drawing water from the lake, a distance of 400 feet, with a lift of twenty-one feet, applying 30,000 gallons in fifteen hours in one application. Mr. Rowsome says he has two acres of extra good celery; whereas, if he had not irrigated, his crop would have been practically worthless. He figures that he has paid for his pumping plant in the results that he has secured this season."

MONTREAL ISLAND

Mr. R. Brodie, Westmount, Que., Nov. 2, 1908: "I had a talk with an Italian (my neighbor) on Saturday and gained the following information: He has about $100 invested in rubber hose that is used for his plants in hotbeds, as well as for his melons and cucumbers. He paid fifteen cents per 1000 gallons for water; altogether $38. I allow $8 for plants, and $30 for melons, about two acres of melons; one man ten weeks steady watering at $10 a week; that would be: Labor, $100; water, $30; wear and tear on hose, with interest, $10; total, $140, for two acres."

NEAR TORONTO

Mr. Thomas Delworth, Weston, Ont., Nov. 7, 1908: "Very little has been attempted around Toronto. Mr. John MacNamara, of Bracondale, north of Toronto, adjoining the city limits, tried it some years ago. An artificial lake had to be made by a land company to boom villa sites just north of his property on higher ground. He got his supply from the lake by a pipe let into the dam. He told me at the time that it was successful with strawberries. I

understand that he has since discontinued it. I do not know why. I have been delaying this letter hoping to see him about the matter, but press of business has prevented me so far.

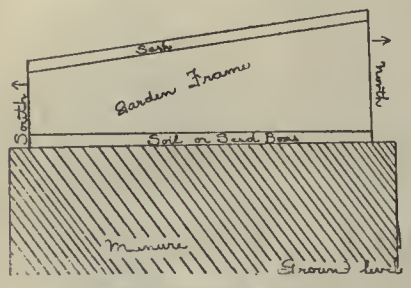
"A neighbor of my own some years ago irrigated several acres of onions and potatoes by damming a trout brook that crossed his property and flooding the patch. He got a large crop of very fine onions, but it did not seem to agree with the potatoes. We supposed it was because the water was too cold. He continued it for several years with practically the same results. Subsequent tenants of the property have not used it. These are the only cases that I know of where it has been attempted systematically.

"The general impression seems to be that it is 'no good.' My own opinion is that very much depends on the nature of the soil, particularly the sub-soil. If that be open and porous and an abundant supply of water easily obtainable at small cost, all right. A small quantity carelessly applied will, I think, do more harm than good, and a large quantity 'ditto,' unless you have proper means of removing the surplus."

The Preparation and Care of Hotbeds

A. V. Main, Pinehurst, Almonte, Ontario

OF whatever dimensions a garden may be, whether the extensive one of a market grower or the humble back-yard of a horticultural enthusiast in the town, the use of a hotbed is a necessity. Its uses are a hundredfold—to raise



Build a Hotbed Like This

various sorts of flower and vegetable seeds and the propagation of many plants with all the modern equipages of glass-houses and artificial heating, the common old-fashioned hotbed is yet considered the best mode of seed raising, the steady and moist temperature of several weeks' duration, acting as the first success to a high percentage of seed germination. To the novice in gardening, the making of a hotbed looks impossible. Limited quarters, time, expense and necessary knowledge mean with many amateur gardeners "no hotbed."

The first days of March is generally early enough to commence preparing a hotbed to be ready for seeds by March 15th. It is early enough for tomato, cabbage, cauliflower, onion, and flower seeds or whatever you purpose to grow. The following simple directions are offered for the benefit of beginners and for those who have been unsuccessful.

THE MATERIAL

Hotbed material consists of good, clean stable manure; that is, straw and horse droppings two or three months old. It does not matter how new the material, but old or wet and heavy material is almost useless and wood clippings and other rubbish which often is found in manure is of similar value.

The real worth of a hotbed is the length of time that it will give off warmth and that should be six to eight weeks. Beds are built too often of no depth and with the manure improperly mixed, resulting in a sharp heat for a week, consequently the seedlings damp off. The failure does not end here for the seedsman is finally accused of selling worthless seeds.

It is a good idea to have a lot of leaves stored in the fall, to incorporate with the manure, to give a more lasting heat. Two good loads of manure will make a fine, useful and handy bed, nine feet square, adapted for a garden frame with two lights or sashes. Always make the bed twelve inches larger all around the frame, whatever size it may be. The glass repaired in old storm windows make a substitute in hard times.

MIXING THE MANURE

Mix the manure well and often. Have it under cover in an open shed if possible, but it is not necessary. With a fork turn over the manure into a cone-shaped heap. Every forkful must be well shaken out and thrown on to the top of the heap, where it will spread out when in a cone-shape. When nearing the finish, clean all the strawy material around the heap and place in the centre with the small manure over it. Turn the manure three times, every alternate day, such as Tuesday, Thursday, and Saturday. Insert a stake into the heap; by withdrawing it occasionally, you can ascertain how it is heating. Generally at the third turning, it will commence to heat and throw off a rank steam. Another turning will be necessary on, say, Monday, purposely to relieve this noxious steam, which is so detrimental to tender seedlings. At the eighth or ninth day, we can build our beds.

Select a sunny aspect sheltered from the north and open to the south to catch all the sun that is going at this date. Two feet six inches is good depth and convenient for working the frame, although three feet gives longer satisfaction if the manure is available. The bed should be marked off with a stake at each corner. Build the manure up in thin layers and tramp it well with the feet, finishing the job neatly, firmly and level. Lift the frame on and put on the lights, partially tilted up with a block of wood to allow superfluous moisture to escape for a couple of days. A very reliable guide when this moisture is not harmful and the bed ready for seed sowing, is when the drops of moisture are quite clear and transparent.

I have made no reference to sprinkling the manure at the outset with water. At this time of the year, if the manure is obtained from a reliable place, it is sufficiently moist, and experience teaches that by adding water to dry, fusty manure, results are not satisfactory.

Sand or finely sifted soil makes a fine level covering inside the frame. I am not in favor of sowing seed in patches or in lines on the top of a hotbed, unless for lettuce or early vegetables that will remain there until exhausted. All flower seeds, tomatoes, melons, and so forth, are best sown in pots or boxes, and are thus convenient to transplant or move as their growth demands.

A secondary frame comes in useful, where boxes of seedlings can be put, to become hardy and to procure light, space and air in more abundance, once they have germinated in the proper hotbed.

A Handy Device

A simple ventilating block for hotbeds may be made by cutting a piece of inch board in this shape. By its use air may be admitted in any quantity desired.

In the middle of favorable days, a little air is advisable for two or three hours.

As the sun strengthens, some shading material is best put on the sashes and at night a covering is also essential for warmth and frost protection. Canvas or sacking or old carpets would do. Make one to fit each sash and nine inches longer than the sash at each end. Take a piece of wood and tack it on at each end. This facilitates the work of rolling it up when required. The piece hanging over breaks the current of air when applying ventilation. This material then can be employed for mid-day sun, also at night and there is no fear of wind blowing it off. Judgment with ventilation, using tepid water for the seedlings, and applying it early in the day are prominent factors of success.

QUESTION AND ANSWER DEPARTMENT

Transplanting Peach Trees

I wish to transplant about sixty young peach trees which have been in the ground for two or three years, but which have not made much growth owing to being planted in unsuitable land and to lack of cultivation and moisture. I desire to transfer them to a gravelly soil and would like to know if this is advisable and practicable and also the best manner of going about it, so as not to destroy too many roots. Are the trees too old to move successfully?—W. G., Okanagan Valley, B. C.

While you cannot expect the same success in transplanting trees that have been established for two or three years as with young trees from the nursery, the operation can be done satisfactorily. The loss of a few roots will do little or no permanent damage. Prune back partially both roots and top. Transplant in early spring. A gravelly soil will grow peaches, if sandy, deep and well drained.

Best Spraying Machine

There are so many spraying machines on the market, I do not know which to purchase. Kindly state which is best.—R. N., Yarmouth Co., N. S.

We have no preference. Consult the advertising columns of this issue. Only reliable firms are permitted to advertise in THE CANADIAN HORTICULTURIST.

Judging at Royal Show

Can you explain the judging of the colonial fruit exhibits at the Royal Horticultural Society's Exhibition, London, England? If by points I should like to know the scale. Are fruits sampled and points given for flavor and firmness?—A. W. W., Yale-Cariboo, B. C.

This question is answered fairly fully in a letter by Mr. T. B. Revett that appears on another page of this issue. The secretary of the society has been asked for further particulars.

Trouble with Begonia

I am sending a begonia leaf. Kindly tell me what is wrong with it. The leaves appear to be healthy but when they reach the size of the one sent, drop off. How can I treat the plant to avoid this?—Mrs. A. E. C., Huron Co., Ont.

I am of opinion that the trouble is caused by lack of drainage at the roots of the plant or poor soil. Gas fumes will also cause the leaves of this plant to drop. Give the plant a season of partial rest for a few weeks by giving it sufficient water only to keep the soil moist, and keep it in a temperature of about fifty degrees. In about eight or ten weeks the plant should be repotted. In doing this remove a portion of the old soil, repot the plant into soil, one part sand, one of leaf or black mould and about four parts of good potting soil, with plenty of drainage at the roots, using the same sized pot. Avoid overwatering the plant. Begonias are not good house plants, especially where the atmosphere is very dry or gas fumes prevail.—Wm. Hunt, Ontario Agricultural College.

Primulas, Begonias, Carnations

What should be done with primulas, flowering begonias and carnations after blooming in winter?—A. S., Thunder Bay District, Ont.

The Chinese primrose (*Primula sinensis*) is scarcely worth keeping over the second season. It is best to raise young plants from seed. Seeds should be sown in March or April in light, well drained soil. The seedling plants should be kept well shaded. Old plants of *Primula obconica* can be kept over and divided for the next season's flowering. Even these are better raised from seed every year.

Flowering begonias that have flowered all winter should be kept moderately dry and in a cool temperature of about fifty degrees until about the end of June, when they can be stood out-of-doors in partial shade, if temperature does not go below fifty degrees. They should be repotted about the end of August and brought indoors before chilly or cold weather commences.

Carnation plants are scarcely worth keeping over for the second season. Young plants rooted from cuttings in January or February, planted out in the open garden in June and potted in August before the severe frosts, give the best results for the following winter season. Old plants can be kept by keeping them in a cool place and planting them out in the ground as recommended for the young plants. The top growth of carnations should be kept pinched out or shortened until about the middle of July for winter flowering.—Wm. Hunt, Ontario Agricultural College.

Celery on Sod Land

Would it be advisable to plant celery on an old sod that was plowed last fall? Would there be danger from wireworms?—A. W. N., Wentwerth Co., Ont.

There would be little or no danger from wire worms on celery. There may be trouble, however, in working the sod for celery, if it has not been properly rotted, and in getting the plants to take root. Mr. George Syme, Jr., of West Toronto, one of the best celery growers of the province, said that he has seen some good crops of celery grown in the way that you suggest but that the crop is likely to be "patchy."

Separating Tomato Seed

What is the best way to separate the seed from the pulp of tomatoes?—A. C., York Co., Ont.

For small quantities, mix inner pulp of the tomatoes with sand, rubbing them together until most of the moisture is absorbed. It is not necessary to separate the seed from the sand. Sow both when the time comes. For large quantities, remove the skin and break up the pulp. Wash with water. The separation may be performed immediately but, if the pulp adheres to the seed, allow the mass to stand until fermentation liberates the seeds. Most of the pulp will then rise, leaving the seeds at the bottom. To liberate the seeds more quickly, place a stick of caustic potash in each pail of water. In the course of an hour or so, the seeds can be rubbed out easily.

Asparagus Beetles

Give treatment for asparagus beetles.—W. A. C., Wentworth Co., Ont.

There are various ways of handling these pests: 1. If practicable, allow poultry to run over the beds. 2. During cutting season leave scattered shoots to grow as traps. Apply insecticides or cut down and burn. 3. After cutting season apply Paris green or arsenate of lead; repeat whenever larvæ appear. Dusting with fresh, dry-slacked lime when dew is on, is also practised. 4. If plants are shaken during hottest weather many larvæ will die on the ground. 5. Against twelve-spotted beetle, pick off the young berries and burn.

Low-Heading of Trees

Editor, THE CANADIAN HORTICULTURIST:—As a student of horticulture since 1846, I heartily agree with Mr. W. J. Kerr, of Ottawa, whose letter appeared in the February issue, that the low-heading of fruit trees is best. His reasons are clearly given, are ample and most practicable.

I would buy buds one year old and thus form the head to suit myself. When trees are two years from the bud many limbs have been cut off for budding other stock so that one cannot head his trees as perfectly as he can if he plants early in the fall or early in the spring one-year-old buds.—Frances Wayland Glen, Brooklyn, N. Y.

The Canadian Horticulturist

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PETERBORO AND TORONTO

The Only Horticultural Magazine in the Dominion

OFFICIAL ORGAN OF BRITISH COLUMBIA, ONTARIO, QUEBEC, NEW BRUNSWICK AND PRINCE EDWARD ISLAND FRUIT GROWERS' ASSOCIATIONS

H. BRONSON COWAN,
Managing Editor and Business Manager
A. B. CUTTINO, B.S.A., Horticultural Editor
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6. Articles and Illustrations for publication will be thankfully received by the editor.

CIRCULATION STATEMENT

Since the subscription price of The Canadian Horticulturist was reduced from $1.00 to 60 cents a year, the circulation has grown rapidly. The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with Dec., 1907. The figures given are exclusive of samples and spoiled copies, and of papers sent to advertisers. Some months, including the sample copies, from 10,000 to 12,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruit, flowers or vegetables.

Circulation Statement

January, 1908	7,650	January, 1909	9,456
February, 1908	7,824	February, 1909	9,310
March, 1908	8,056		
April, 1908	8,250		
May, 1908	8,573		
June, 1908	8,840		
July, 1908	9,015		
August, 1908	9,070		
September, 1908	9,121		
October, 1908	9,215		
November, 1908	9,323		
December, 1908	9,400		
Total for the year,	104,337		

Average each issue in 1907, 6,627
Average each issue in 1908, 8,695
(Increased circulation in one year over 2,000)

Sworn detailed statements will be mailed upon application.

Our Protective Policy

We want the readers of The Canadian Horticulturist to feel that they can deal with our advertisers with our assurance of the advertisers' reliability. We try to admit to our columns only the most reliable advertisers. Should any subscriber, therefore, have good cause to be dissatisfied with the treatment he receives from any of our advertisers, we will look into the matter and investigate the circumstances fully. Should we find reason, even in the slightest degree, we will discontinue immediately the publication of their advertisements in The Horticulturist. Should the circumstances warrant, we will expose them through the columns of the paper. Thus, we will not only protect our readers, but our reputable advertisers as well. All that is necessary to entitle you to the benefits of this Protective Policy is that you include in all your letters to advertisers the words, "I saw your ad. in The Canadian Horticulturist." Complaints should be made to us as soon as possible after reason for dissatisfaction has been found.

Communications should be addressed:

THE CANADIAN HORTICULTURIST,
Toronto Office: 72 Queen street west. PETERBORO, ONTARIO.

EDITORIAL

BIOLOGICAL DIVISION NEEDED

Under the heading, "Should Not Separate Work," on another page of this issue, appears a letter from Prof. John Craig, of Cornell University, that criticizes our editorial remarks on the work in biology at Ottawa. The professor agrees with the changes that we proposed, with the exception of the one that would place the new division under the direct control of the Minister of Agriculture, instead of the Director of the Experimental Farm. Even if a separation were made the laboratories could be located at the farm, where facilities for the investigation of insects and fungous diseases of the greenhouse, orchard and farm are all that can be desired. The main advantage in separation lies in the directness of approach to the minister. As it is now, the head of an investigation department confers with the director, and the director with the minister. As a result, the head has two persons to convince as to the necessity or wisdom of any given line of procedure, and the natural outcome is that delays are frequent, vexatious and tedious.

Furthermore, there would be a great advantage in having a biological division that would, in virtue of its greater initiative freedom, better serve the divisions of Dairy and Fruit and Seed. It is conceded by many persons that the officers of these divisions, who have travelled extensively over the Dominion, are even more conversant with the needs of the people reached through their respective divisions than the director himself. As these divisions are at present constituted, they are more than purely administrative departments. Their work is partly of an investigational nature (sometimes overlapping and supplementing that of the Farm), relating to problems that arise for solution in carrying out the measures of the Government.

This system of organisation of the expert forces of the Department of Agriculture has worked well at Washington, and no country in the world is doing so much valuable work in agriculture as the United States. A separation of the biological division from the Central Experimental Farm would be in the interests of the agricultural progress of Canada.

QUEEN VICTORIA PARK

Elsewhere in this issue appears a letter, signed "A Citizen," that refers to editorials about the management of Queen Victoria Park, Niagara Falls, Ont., that have appeared in recent issues of THE CANADIAN HORTICULTURIST. Our correspondent implies that our editorials have been inspired by an ex-employee of the park and that we are not personally acquainted with conditions at the park. Last summer an editorial representative of THE CANADIAN HORTICULTURIST visited Queen Victoria Park. He was furnished information about the management of the park by one of the foremost citizens of the United States, a man who has visited the park every summer for years, who is in no way interested in its management and who knows the situation there as few do. Further investigation by our representative on the spot convinced us that it was necessary that the attention of the government and of the public should be drawn to the matter in order that improvement might be effected.

Since our editorials have appeared, one of the employees, whose appointment we felt had not been necessary, has been discharged, thus effecting a measure of improvement. One of the more important positions was created on Mr. Wilson's recommendation but Mr. Wilson, although he was the superintendent, was not consulted in regard to who should be appointed to fill that position, although it is one of the most important positions in the park. The man appointed to the position lacks the training and ability that the position requires.

The fact that the park last summer did not reveal to the casual observer the result of the incompetence of the management was because the main work of preparation had been accomplished by the former park officials. The present year will show a marked impairment of the appearance and value of the park unless the work of improvement that has been started since the publication of our first editorial is pressed vigorously.

THE CONTROL OF NURSERIES

Last month, we directed attention to a defect in the bill respecting the control of nursery stock that the Ontario Fruit Growers' Association desires to have made law by the Ontario Legislature. As stated on page 39, the association had in view, when drawing up the bill, the control of nurserymen who are careless or dishonest or both. Not only is it against this class that some protection is needed, but also against irresponsible dealers and agents, against whom fruit growers have the greatest grievance. These are not covered by the proposed bill to an effective extent.

According to the wording of the proposed bill any men of this class could apply for a license and take up their stand for one year in one place and, after getting in their fine work, clear out and start business in some other part of the country under some other name. How much better off will the fruit grower be, who places his order with this class of dealer because his prices are a few cents cheaper than those of the bonafide nurserymen, than he is at the present time? Dealers of this kind are allowed by the bill as it now stands to take out a license and no bond or guarantee is required to say that they are responsible for damages should any arise.

The bill should be changed so as to include this class of men. As it stands, it is going to be a great injustice to the bonafide and reliable nursery concerns. Neither will it protect the fruit grower against that class of men against whom he has the most complaint. Irresponsible dealers and agents harm both the reliable nurserymen and the fruit growers. They should be stamped out.

It was also stated in our editorial last month that the nurserymen will have to charge more for their stock when this bill becomes law. Prices must inevitably be higher as the bill will necessitate each of the larger and reliable firms providing for unavoidable losses due to errors made by employees. These losses will have to be met by setting by an insurance fund.

OUR EXHIBITS AT ROYAL SHOW

There has been a misunderstanding in the minds of most of our fruit growers in respect to the manner of judging fruit at the Royal Horticultural Society's Shows in London, England. During the past two years, British Columbia was widely advertized for her good fortune in winning gold medals for general collections of fruit and she deserved the credit. The impression, however, that British Columbia won her gold medals by defeating the other provinces and colonies was unfair to them.

As is pointed out in an article elsewhere in this issue, there is no competition between provinces or colonies. Each one

stands alone and on its own merits and receives awards accordingly. Because British Columbia won gold medals does not mean that that province won them over the others, nor does it say that Ontario and Nova Scotia won gold medals last November for better displays than that of British Columbia, or of any other colonial exhibitor. It means that these exhibits were each worthy of the honors conferred and that they received equal recognition because equally worthy. Let it be remembered that our provincial exhibits at London are sent not for inter-provincial competition but for advertizing to the world the great fruit growing possibilities of our Dominion.

Can some of our subscribers forward to this office copies of the February, 1908, or October, 1908, issues of THE CANADIAN HORTICULTURIST. We desire to secure the same for our files, and would much appreciate the receipt of one or both of these issues.

Should Not Separate Work

Editor, THE CANADIAN HORTICULTURIST:—I am interested in your editorial in the January issue of THE CANADIAN HORTICULTURIST under the caption, "A Biological Division Needed." It seems to me that this is an excellent suggestion. Your proposed method of organization, however, does not appeal to me. You say very truly that all biological work related to the farmer and the farm has been carried on at the central station of the Dominion farm system during the past twenty years. This work has been conducted by the departments interested. You now propose to separate this vital investigational work from the institution which has been specifically established for the purpose of dealing with just such problems, and give it to another and entirely distinct division of this department of public service.

The experimental farms of Canada were organized expressly for the purpose of dealing with biological life problems. The inside service was organized, as I understand it, for administrative work. Would it not be just as logical to recommend the affiliation of a legislative service with the Ottawa farm, as a biological division with the administrative branch? Each has its own facilities for carrying out its own type of work. The disarrangement of these would mean at any rate the unnecessary duplication of equipment and facilities. It seems to me that it would be both illogical and unwise.

These remarks are prompted not by a mere desire to take part in a discussion, but by virtue of the interest which arises out of former association with the Dominion Experimental Farm system, and a somewhat extended knowledge of organization methods in relation to public service for agriculture in the United States.—John Craig, Professor of Horticulture, Cornell University, Ithaca, N. Y.

THE CANADIAN HORTICULTURIST stands for everything that will tend to develop the great horticultural resources of this great Dominion.

I have taken THE CANADIAN HORTICULTURIST for 20 years, and have gained a great deal of useful information from it. I could not get along without it.—James Wittup, Yale-Cariboo, B. C.

Another big apple show will be held in Spokane, Wash., this year. Orchardists in all parts of the world will be invited to compete and it is expected that the prize list will represent more than $50,000, in addition to trophies, cups and special awards.

Judging Fruit at Royal Horticultural Show

AMONG most Canadian fruit growers, there has been a misconception in respect to the manner in which fruit is judged at the Royal Horticultural Society's Shows in London, England. Letters asking for information on this point have been received from various sources by THE CANADIAN HORTICULTURIST. These requests were submitted to two gentlemen who had charge of Canadian exhibits at the Royal show last November.

Mr. R. M. Palmer, Deputy Minister of Agriculture for British Columbia, replied as follows:

"I regret that I am unable to furnish the information requested. Permit me to suggest that you could, no doubt, obtain the information desired on application to the secretary of the Royal Horticultural Society, Vincent Square, London. I may, perhaps, state that at the Royal Horticultural Society's colonial fruit shows, exhibits of British Columbia fruit have been awarded medals for *merit*. These medals are of various grades, from the gold medal of the Royal Horticultural Society, which I understand, is the highest award given, to silver gilt, silver and bronze medals." The secretary of the Royal Horticultural Society has been asked by THE CANADIAN HORTICULTURIST to furnish the desired information. His reply will be published in the issue following its arrival.

Mr. T. B. Revett of the Ontario Department of Agriculture gives some valuable information in the following letter:

"The Royal Horticultural Society inaugurated three colonial exhibitions and their chief object was to bring before the British public the horticultural products of the different colonies. They were confronted with two great problems: First, to get the colonial growers and governments interested; and second, to attract the attention of the British public. Owing to these obstacles they have had to abandon two of these exhibitions and will continue the show in November another year in order to give it another opportunity to prove itself of value.

"It will be easily understood that the primary consideration of the society was to obtain the exhibits and co-operation of the growers and governments of the colonies, and they naturally gave any obstacle which would tend to cause any bad feeling amongst the different exhibitors a very wide berth and, acting under this influence, they decided that the wisest plan was to make the exhibits non-competitive and to judge them by a standard of excellence, giving their awards accordingly. It is my opinion that in doing this they saddled themselves with the exceedingly hard problem of satisfying all exhibitors and governments.

"For instance, at the last exhibition held in November, they had at the exhibition all the different islands of the British West Indies and Canada was represented by Ontario, Nova Scotia, and British Columbia. The exhibits from the other provinces were made up of private exhibits from the different growers, while those from Ontario were shown by the Department of Agriculture for the province. We entered in seven different classes and in an interview with the assistant-secretary of the society, who by the way, has practically complete control, I was told that the exhibits were not competitive and given to understand that it was unnecessary to divide our exhibit into its component parts. However, we divided it as nearly as possible showing a table of dessert varieties, a table of vegetables, one of preserves and one of canned goods.

"After the awards of the prizes were made Ontario was given a gold medal. British Columbia and Nova Scotia also received one, together with the additional medals awarded to the individual exhibits; i.e., these two provinces' exhibits consisted of exhibits sent by growers all of whom received a medal, then a gold medal was awarded to the government for these exhibits as a whole or virtually for the assistance given in sending over and looking after the exhibits.

Part of Ontario's Exhibit Which Won a Gold Medal at Royal Horticultural Society's Show Last November

"If Ontario had entered her exhibits under different names she would have received the same treatment, but according to the constitution or minute book of the society, an exhibitor, having received the maximum reward in the shape of a gold medal for one of his exhibits could not receive another award, except he had entered the exhibits under another name. You will see by this that there was practically no judging, no separation or classes and awards were apparently given to all exhibitors. There were not a few varieties improperly named and in one instance the fruit was not even first-class fruit.

"The Royal Horticultural Society is a very strong and highly respected organization in England and, as previously explained, their object is to bring the products of the colonies before the British public, and those receiving the highest award from them establishes a reputation among the English horticulturists.

"The show itself was an excellent one.

British Columbia had an excellent position and displayed to advantage two varieties of apples,—Grimes' Golden and Jonathan, both were very extremely colored and afforded contrast with the other varieties shown. Nova Scotia had a very fine show, exhibiting a splendid collection of varieties. Ontario showed about 70 varieties of apples. 15 varieties of pears, eight of grapes, a few peaches and Reine Claude plums, a full collection of the best varieties of vegetables, and also a splendid collection of preserved and canned fruits and also canned vegetables."

To Control the Blister Mite

Experiments designed to control the leaf blister mite in apple orchards have been conducted by the Agricultural Experiment Station at Geneva, N. Y. The results are mentioned by Professor Lochhead on page 50 of this issue. Bulletin No. 306, recently received gives the following conclusions in regard to the work with lime-sulphur sprays:

"In the experiments with the sulphur sprays, comparative tests were made of the common lime-sulphur wash, a home-made concentrated mixture, and two commercial concentrated preparations of the lime-sulphur wash. Very satisfactory results were obtained in every orchard in which they were employed, and there was apparently no appreciable difference in the effectiveness of the various preparations on the mite when they were used under similar conditions. The measure of protection actually obtained showed, as would naturally be expected, some slight variations in the various orchards, which were probably due, largely, to differences in the standards of spraying of the fruit growers.

"In every test all trees that were thoroughly treated with a sulphur spray showed, in comparison with the checks, a marked diminution in the numbers of the mites, which in several instances resulted in almost complete destruction. The results show very plainly that one application during the dormant season, or as buds are bursting, affords efficient protection to the trees, and that the mite is not ever likely to be of importance in orchards that are annually sprayed with the lime-sulphur wash, a practice now common in many localities where the scale threatens."

An Attractive Offer.—Messrs. Dupuy & Ferguson, seedsmen, of Montreal, are making an attractive premium offer to those who purchase their spring supply of bulbs and garden seeds from them. By taking advantage of this offer, customers of the above firm are enabled to secure free subscriptions to THE CANADIAN HORTICULTURIST as a premium on orders given. The spring issues of THE CANADIAN HORTICULTURIST will tell you how and when to plant, and will give many useful suggestions on making your garden. If you are not already taking THE CANADIAN HORTICULTURIST, write to the above mentioned firm, asking for particulars regarding their special premium offer of free subscriptions to THE CANADIAN HORTICULTURIST. Mention this offer to your friends who intend having a flower garden next summer.

Change of Address.—Owing to the large increase in their business, Messrs. Wm. Cooper & Nephews have found it necessary to take a warehouse, and wish to notify the public and their customers that their new address will be Peterkin Building, 152 Bay Street, Toronto, where all communications should be addressed.

Judging Plate Fruit*

W. T. Macoun, Horticulturist, Central Experimental Farm, Ottawa

THERE should be some agreement as to just how fruit should be judged in the maritime provinces. You have quite a number of judges coming to your exhibitions and to meetings of this kind and each one semes to have a different idea of how fruit should be judged. One judge has one idea, and another, another idea. You never know how to put up fruit to be judged at an exhibition. It seems to me that at Truro, at the Agricultural College, an agreement could be made with the other provinces, on some methods of judging fruit on plates and also in boxes. A circular could be printed and published telling of the agreement as to how fruit should be judged at these exhibitions. I am simply giving you my idea and I hope we may have others who will give theirs also.

It seems to me that a plate of fruit should be judged largely from that standpoint and for that reason. I think that uniformity is one of the chief requisites, also freedom from blemishes, high color and thorough maturity. Large size is not so important as these.

FREEDOM FROM BLEMISH

When we sit down to dinner or breakfast, if we see some dirt on the tablecloth or some specks here or there we do not relish our dinner quite the same. The same thing suggests itself to me, when I look at a plate of fruit. We want an apple with no spots or holes in it and the stems should be left on every specimen, if it is possible to leave them on.

UNIFORMITY

The next thing is uniformity. If we have a plate of fruit with every specimen a different shape, it is not nearly as impressive nor as pleasant to look upon as a plate of fruit where the apples are all about the same size.

Professor Ross.—Why is so much importance attached to having the stems on the apples?

Ans.—I do not consider that of so very great importance; yet, in order to have the plate of fruit free from blemish, they should be left on.

Professor Ross.—Why not have a piece of the branch as well as the stem?

Ans.—That is rather a difficult question. I consider an apple looks better and keeps better with the stem on.

D. J. Stewart.—It is not one of the points of identification?

Ans.—Yes; it helps to identify apples. Some have short stems and others have long, slender stems.

Mr. Annear.—The stems might be all right for exhibition purposes but for ordinary use it would not be of any consequence.

COLOR

Mr. Macoun.—Now, the question of color is one of the important requisites in a plate of fruit and it is just a point for the judge to decide whether a rather poorly colored plate of fruit which is perfectly uniform would be better than a highly colored plate of fruit which were not uniform. These are points which the judge has to use his own discretion in deciding on.

SIZE

With regard to the size, it would only count about half as much as color, uniformity and freedom from blemishes. There is a limit to size. For instance, here is a plate of highly colored fruit but it is too small for the variety, therefore, a plate of this size (of good size for the variety), not quite so highly colored takes the second prize, when this (illustrates with a plate of small specimens) does not take a prize at all. This is a point the judge has to decide. A good size for the variety (illustrates); that, to my mind, is a perfect plate of Kings. The color and form are good, and it is perfectly uniform. It takes first prize. We had considerable difficulty in judging the Kings, and the reason that these Kings got second prize is that they were not quite so highly colored and not quite so uniform as these apples.

MATURITY

Then, there is the question of finish or maturity (illustrates). Here is a plate that does not look matured, as if the apple had been picked a little too soon, or too green (illustrates). There is a plate of apples which got first prize where the skin has a slight yellowish tinge; at the same time, that is an apple which will keep and is a highly colored fruit, uniform and quite large enough for the variety.

POLISHING

Rubbing brightens the color but the judge should not take that into consideration because, if necessary, the judge can polish them himself and make both plates the same as regards the polish. You can tell whether they are polished or not. The judge would prefer not having the fruit polished because he is inclined to think that the man who polishes his fruit is trying to make it better than it really is.

*From an address given by Mr. Macoun, at the last annual meeting of the P. E. I. Fruit Growers' Association. A discussion on this subject is invited. Send expressions of opinion to The Canadian Horticulturist.

A Burning Success for 20 Years.—In our churches, schools and residences, the special and patented construction of "Kelsey Warm Air Generators" makes it possible to have economical warming with proper ventilation. "The Kelsey System" means the supplying of large volumes of pure, fresh, warm air; not scorched, burnt, and vitiated air from which every vestige of moisture has been removed. The Kelsey fire pot and combustion chamber, being formed of long, hollow, corrugated sections, gives three times as great an area of heating surface and three times as much air circulation as that of the ordinary furnace with the same grate surface. All Kelsey users say that it is absolutely gas and dust proof, and that there is no radiation of heat in the cellar. The James Smart Mfg. Co., of Brockville, are the exclusive makers for Canada and employ heating engineers who furnish plans and estimates for the warming and ventilating of any kind of building. We draw your attention to their adv. in this issue. Any one having an apparatus that is not giving good satisfaction or who is contemplating the purchase of a heater cannot afford to decide without first investigating this remarkable system.

Show this copy of THE CANADIAN HORTICULTURIST to a friend and secure his subscription. We will extend your own subscription for six months for securing one new subscription, or for a year for securing two new subscriptions.

At the annual meeting of the Niagara Township Fruit Growers' Association, the election of officers resulted as follows: Pres., Wm. Armstrong; 1st vice-pres., H. C. Bradley; secy., W. O. Burgess; treas., Melvin Minthorn. On Feb. 5th this association held a reunion and oyster supper.

Re Queen Victoria Park

Editor, THE CANADIAN HORTICULTURIST:—I notice in your January number in the editorial columns a severe criticism on the management of the Queen Victoria Niagara Falls Park, which I think deserves some attention, not wishing to cast any reflections on the management of the above park while under ex-superintendent Wilson, which I believe was satisfactory to those best acquainted with the facts. It seems to me it would have been better on your part to have enquired more carefully into the present management of the park and its requirements, before publishing such an article as above referred to, apparently on the *ipse dixit* of an ex-employee of the park.

I notice the following, "some positions have been created to furnish situations for party heelers." Allow me to state for the benefit of your readers that there is not a position in the park to-day that was not created and filled by the old board and after the written report of ex-superintendent Wilson, recommending such position to be filled. Mr. Wilson fully realized the increased area of the park extending as it does from lake to lake causing greatly increased responsibilities and work for the office staff; consequently he recommended over three years since, the appointment of an assistant, which appointment was made by the board, and I am pleased to notice that you are the first person so far heard from questioning the wisdom of his (Mr. Wilson's) recommendation and pronouncing it unnecessary.

Your reflection on the present holder of the position of assistant-superintendent as only a "farmer" does not do credit to the publisher of a horticultural publication, and as for him having been a defeated candidate for the legislature only goes to show the respect and confidenee in his ability, entertained by a large portion of the residents of the county of Welland who placed him in the position. Your judgment pronounced upon the qualifications of the chief gardener is quite as uncalled-for and unworthy, as the contents of the greenhouses and flower beds in season amply prove.

Another, "there is need for improvement in the personnel of the officials." I will venture to say you have not the slightest acquaintanee with a single park official, their qualifications or duties, except perhaps that heard from the aforesaid ex-em ployee who apparently is not noted for veracity.

Still another, "the rapid deterioration that has taken place in the appearance and character of the park in general, and of many plants, trees and shrubs in particular." I am quite safe in saying that you cannot find a disinterested person on either side of Niagara River who is or has been a frequenter at the park who will agree with you in that remark. On the contrary, scores of compliments have been showered on the staff for the excellent and in many plaees improved appearance of the park during the past season and that by men competent to judge.—A Citizen.

Better Results Every Year

Editor, THE CANADIAN HORTICULTURIST:—I consider THE CANADIAN HORTICULTURIST the very best advertising medium for anyone who has anything to sell to those interested in purely horticultural pursuits. Other mediums may secure business from a few local customers, but THE CANADIAN HORTICULTURIST has brought me orders from prominent fruit growers in all parts of Canada, from Cape Breton. N. S., to the Okanagan Valley, B. C. I have used your advertising pages for years, each succeeding year with greater and more gratifying results.—W. H. Vanderburg, grower of choice strawberry plants, Poplar Hill, Ont.

Queen Victoria Park Again

Editor, THE CANADIAN HORTICULTURIST:—Let me add a few words of appreciation to the stand you have taken about Messrs. Cameron and Wilson. I knew the latter but slightly, but paid Mr. Cameron several memorable visits at the park. From the first time he showed me over the park I realized that Canada had a beauty spot there and also a horticultural paradise, for Mr. Cameron was growing shrubs and trees there, hardy no where else in Canada (but the Pacific coast), and not reliably hardy south of Niagara for the breadth of a couple of states—a place to be developed to its utmost—for the education and enjoyment of Canadians.

Mr. Cameron had all that at heart, and was full of enthusiasm for the possibilities of his park. He filled his position dutifully and with competence. Whatever be the reasons for his dismissal, stand for it that his successor is in no way a lesser light.—B. C.

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If there is anything about this issue of THE CANADIAN HORTICULTURIST that you do not like, tell us about it. Suggestions are welcomed.

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New Horticultural Societies

Through the efforts of Mr J H. Hare, the district representative of the Ontario Department of Agriculture at Whitby, new horticultural societies have been organized at Oshawa and Whitby. At the organization of the Oshawa society, Mr. A. Barber, of Bowmanville, introduced horticultural society work to the members and at the Whitby organization, Mr. J. Lockie Wilson, Superintendent of Horticultural Societies, Toronto, pointed out the good that such a society might do its members, and also to the community in which it is located.

Officers for the Oshawa society were elected as follows: Pres., Mr. W. H. Tonkin; 1st vice-pres., Mr. R. J. Cowan; 2nd vice-pres., Mrs. L. C. Smith; and a board of nine directors. The Whitby officers are as follows: Pres.. Mr. E. Edmund Starr; 1st vice-pres., Dr. A. Adams; 2nd vice-pres., Mr. G. H. Hogarth; sec.-treas., Mr. W. A. Wilcox; auditors, Messrs. Jos. White and Geo. Robb; and a board of eight directors.

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Short Course At Guelph

A. J. Logsdail, Ontario Agricultural College

The short course in fruit growing given at the Ontario Agricultural College, Jan. 26 to Feb. 5, was replete with valuable information. Those in attendance were greatly pleased with the manner in which it was carried out, credit for which was due largely to Mr. J. W. Crow, of the college.

In an address on "Locations, Sites and Soils for Fruit Orchards," Mr Harold Jones, of Maitland, brought out valuable points. Climatic conditions are modulated by the proximity of large bodies of water, deep water having a greater effect than shallow water. This modulating effect might extend from one to five miles inland, or to a height of some 200 feet above water level. Orchards should not be set on low ground where the cold air from surrounding areas would collect and settle at night, such places being always more susceptible to late spring frosts than higher ground. For apple trees a clayey or sandy loam, naturally drained, is the most suitable, but if the soil should indicate that it is in the least bit incapable of self drainage, artificial methods should be made use of, preferably before planting the trees. The old idea of planting on a N. or N.W. slope to avoid sunscald, is now being disregarded, because the lower headed trees are less susceptible to this form of injury. By a S. or S.W. slope a greater amount of direct sunlight is obtained and the effect of cold north winds is guarded against. Light soils freeze deeper than heavy soils; therefore, the roots of trees on such soils should be protected by either cover crops or a supply of humus in the form of some kind of litter.

Mr. W. H. Day, of the physics department of the college, gave an interesting lecture upon drainage and another upon the conservation of moisture in soils. In concluding he referred to several practical examples where farms in Ontario had greatly increased their annual output; in one instance, the resulting increase in crop paying for the drainage operations the same season.

Mr. W. T. Macoun, of the C. E. F., Ottawa, gave an interesting address upon the propagation of fruit trees and plants. He considered the newer method of low-headed trees to be a distinct improvement on the older system of high-heading, low-headed trees being more easily sprayed and pruned, the crop more easily and economically gathered, and the trunks and main branches of such trees being less likely to suffer from sunscald or splitting in stormy weather. He also stated that nurserymen would grow a number of trees in any particular way desired for their customers, if the orders were placed sufficiently early (say two years or even three) before the trees were required. Mr. Macoun emphasized the fact that many fruit men might, with but little trouble, raise their own stock, by which method they would know their young trees were true to name and taken from parent stock of good quality.

A short lecture upon the "Selection of Nursery Stock," was given by Mr. J. W. Crow. He emphasized the necessity for growers to know just what they were buying, and that to be led away by substituted stock, which was "just as good," often meant failure to the grower. Only a few varieties are suitable for any one locality

and to grow other than the varieties of the locality is a risky speculation.

An interesting talk on "Growing Strawberries for the Canning Factory," was given by Mr. S. H. Rittenhouse, of Jordan Harbor. He stated that about 90 per cent. of the strawberries sent to canning factories in his district were of the Williams variety. Its advantage to the grower is that it is a fruit of good size, fair quality, good color except for its characteristic green tip; it is a heavy cropper and a good shipper; the canning man likes it because of its color and because the fruit will preserve without breaking up.

Mr. Rittenhouse estimated the cost of growing an acre of strawberries to amount to about $50, which includes rent of land, manure, cultivation, and so on. From each strawberry patch he takes two crops. He follows a system of selection when choosing plants for new ground, the new ground having been thoroughly prepared some time previously. Mr. Rittenhouse considers that the secret of success in growing crops for the canning factory is to grow what they ask for, and only try to grow the best, then they will offer top prices. Combination among several growers to grow the same crop is also a sure way of attracting the best buyers to a locality.

An address upon the subject of "Judging Fruit," was given by Mr. Macoun. He deplored the lack of a general system of judging fruit in Ontario. The adoption of such a system would do away with much of the general dissatisfaction now met with in many small shows and exhibitions throughout the province. Such a system is now being arranged in the maritime provinces. Ontario fruit growers should write and appoint a committee of reliable men to draw up a system of judging, a score card, or some such guide as similar as possible to that in the maritime provinces for conscience sake, and have it circulated widely throughout the province, so that all growers would know what was required of them at exhiibtions. He also contended that apples from widely separated localities should not be entered in one class, even if of the same variety, the differences often being so great as to handicap exhibitors from certain sections. He contended each section ought to exhibit only those varieties most suited to it.

Mr. Macoun considered that only one judge should be called upon to judge any class of exhibits. All responsibility would then fall on him and him alone. If he were a capable and competent man, he would be able to explain the reason of any action he might have taken. Throughout this lecture many valuable hints were thrown out, which caused an interesting discussion.

Mr. H. S. Peart, of the Jordan Experiment Station, gave a most interesting and comprehensive talk upon the best methods of cultivation and general attention for young orchards. He gave much useful information about the methods adopted by growers in sections that he had visited.

A part of the proceedings is reported herewith. The other features will be mentioned in the next issue.

Peach Trees on Plum Roots

A. M. Smith, St. Catharines, Ont.

The destruction of peach orchards for several years in the Essex peninsula by root freezing aroused the attention of planters to the necessity of providing some remedy or prevention for this loss. Cover crops and mulching were tried with some measure of success, but on account of the

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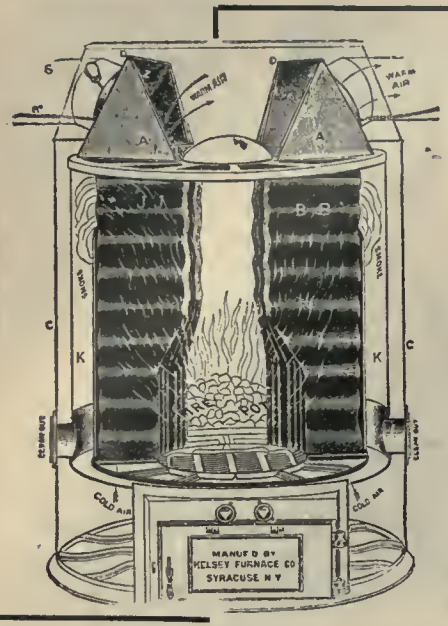
light sandy soil, it was difficult to produce a good cover crop and mulching was expensive. The board of control of the experimental fruit stations was consulted. They suggested growing the trees on something hardier than their own roots as a remedy. They tried to purchase some trees budded on plum, but could find none, either at the nurseries in Canada or the United States; so, I volunteered to grow them some if they would furnish the stocks. Accordingly they sent me in the spring of 1907, 500 each of Americana and St. Julian plum stocks which were carefully planted. They made a fair growth and were budded in August.

The buds took fairly well and made a good start last spring, but about midsummer, those on the St. Julian stock stopped growing and had quite a sickly appearance, (something like the yellows). I got only ten trees out of the entire lot big enough to plant this fall. Those on the Americana stock made a vigorous growth, quite equal to some alongside of them on peach roots. I got over 300 first-class trees out of the 500 budded. The St. Julian will have to be grown another year and it is not likely that it will ever be good trees.

If you want to grow peach trees on plum stock get the Americana. It remains to be seen yet how they will bear. The experimental stations will plant them next spring and test them.

Fruit notes are wanted for publication.

The use of Cooper's V1 and V2 Spraying Fluids last season against San Jose scale could only be regarded as an experiment. It must be conceded that in placing an altogether new remedy for so formidable a pest as San Jose, a considerable amount of experimental work was necessary, and it was for this reason the manufacturers refrained from pushing, to any great extent, the sale of these articles. From the experience of 1908, the manufacturers have learned so much that the use of their fluids in the coming season against San Jose scale will be no experiment, but will mean the application of a successful remedy.



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Tariff Matters—Fumigation

M. G. Bruner, Olinda, Ont.

At a meeting of the South Essex (Ont.) Fruit Growers' Association, the following resolution was passed: "Resolved that in the opinion of this Association it would be to the interest of the fruit growers the province over to have the Dominion Government remove the present duty that is imposed on the commercially prepared lime and sulphur solution, and on the arsenate of lead paste, which are now being prepared by different chemical companies in the United States, but as yet are not manufactured in Canada. And also resolved that the fumigation stations are no longer of any benefit, but rather an injury to trees being imported from the neighboring states, by the rough or careless handling the trees receive while passing through some of these stations; therefore, we ask the Government to remove the same, as there is a law in each and every state which compels every nurseryman to fumigate their trees before they leave the nursery." These same resolutions were passed by the Leamington Fruit Growers' Association at their last regular meeting.

I have had trees killed by the handling they received at the Windsor station in the spring of 1907. The trees had been undone to be fumigated and not properly re-packed. When they reached me the roots were as dry as straw.

The Essex county council appropriates $25 each year to our association for the purpose of getting new fruits for the members to test as to the adaptability of our county to the growing of such new fruit trees or plants. As president of the association for the present year, I called for a report on the trees and plants at a meeting in January, and found that on an average about three-fourths of the trees died. The cause was in almost every case laid to the fumigation; hence the above resolution.

Vegetable Growers Dine

The members of the Toronto branch of the Ontario Vegetable Growers' Association held a well attended and successful banquet in Toronto, February 9th. The principal speakers were Hon. J. S. Duff, Minister of Agriculture; Mr. J. Lockie Wilson, Secretary of the Ontario Association; Mr. Thos. Delworth, of Weston; H. B. Cowan of THE CANADIAN HORTICULTURIST; Mr. Jos. Rush, Humber Bay; Mr. R. J. Bushel, of Kingston, and Mr. A. McMeans, of the Ontario Agricultural College.

The president of the provincial association, Mr. Thomas Delworth, of Weston, announced that the Ontario association, this year, purposes conducting experiments in the growing of onion seed, to find which seed gives the best results in Ontario. Seed from France and California will be tested as well as Ontario grown seed.

Mr. J. Rush announced that the vegetable growers around Toronto during the past year, have erected greenhouses and effected other improvements in their grounds and buildings amounting to about $500,000. He assured the young vegetable growers present that if they would devote their attention to growing the best possible vegetables without thinking of the money return, they would find that the money would come of itself.

As a result of a trip he had had to six of the leading vegetable growing states in the American union, Mr. A. McMeans, of Guelph, announced that more is being done in Ontario for the advancement of the vegetable interests than in any other state or province on the continent.

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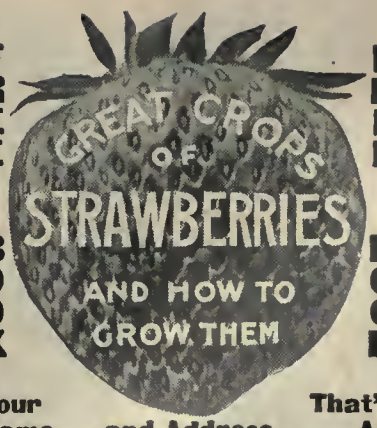

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NOTES FROM THE PROVINCES

Northern Okanagan, B. C.

The Northern Okanagan Valley is that section of the country lying to the north of Vernon and south of the C. P. R. It will average four miles in width by about 35 miles long and is an exceptionally productive strip of country. The soil generally may be described as loam; that is, we have a clay sub-soil, covered by a vegetable loam, varying from a few inches to a foot or more in depth. Generally speaking, as we get into the foothills, the soil gets to be of a much lighter character.

While fruit raising has not received as much attention as it has in the balance of the Okanagan, it is rapidly coming to the front and promises in the near future to be the leading industry of the whole valley. Every year, thousands of young trees are being planted, the varieties being confined to a few of the best standard kinds. It is from end to end, a first-class fruit district. Apples, plums and pears do remarkably well. As a matter of fact, over-loading is one of our greatest troubles and as this is a general or mixed farming section, the orchards were looked upon as a side issue, proper attention in the shape of spraying, thinning fruit, and so forth, not being given them. This is a condition which, however, is rapidly changing and we may expect, in the future, to see well-kept orchards the rule instead of the exception. And why not, when we hear of comparatively young orchards yielding from $2.00 to $3.00 to as high as $25.00 to $30.00 to the tree? The promise for the future of the fruit grower is surely encouraging. Small fruits also do well. The writer knows of one case where $300 worth of strawberries was sold off one-third of an acre of land.

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The fruit crop this year is good, but, on account of local conditions, the values obtained are lower than usual. Apples sell for 90 cents a box; pears, $1.25 a box, and plums 50 cents per crate of 20 pounds.—"Farmer."

Kootenay Valley, B. C.

Edgar W. Dynes

Maxwell Smith, Dominion Fruit Inspector, Vancouver, B. C., delivered an address at Nelson, some time ago and, after complimenting the growers on the high reputation that the district had attained for its fruit, reminded them that a reputation is an awkward thing in that it has to be kept up and urged all present to work towards that end. The subject of his address was "The Commercial Aspect of the Fruit Industry." He maintained that in selling and marketing the greatest difficulties would be encountered and outlined the methods of successful organizations with which he had come in contact and urged their adoption by the local association.

Mr. W. J. Brandrith, of Ladner, also delivered addresses throughout the district under the auspices of the farmer's institutes. A new branch of the institute was formed at Nakusp and it already has a large membership.

Local nurserymen report a large demand for their stock and that they are already sold out of a number of the leading varieties. New settlers are coming in constantly and the prospects are that 1909 will see a material increase in the orchard acreage of the Kootenay.

Montreal

E. H. Wartman, Dominion Fruit Inspector

The fruit seasons of 1907 and 1908 will long be remembered by fruit growers and fruit buyers. A year ago apples were in large quantities on our fruit auction and selling from 90 cents to $1.50 a barrel. To-day the same varieties and packing are selling under the hammer from $2.50 to $4.50 a barrel. Can one imagine two greater extremes in 12 months?

To-day Nova Scotia apples are in our market and giving very good satisfaction as to quality and grading. Of course, they are short 10 to 12 pounds of Ontario barrels and look inferior in build to the Ontario eight-hoop barrel; yet, no one denies their strength to endure hardships on long jour-

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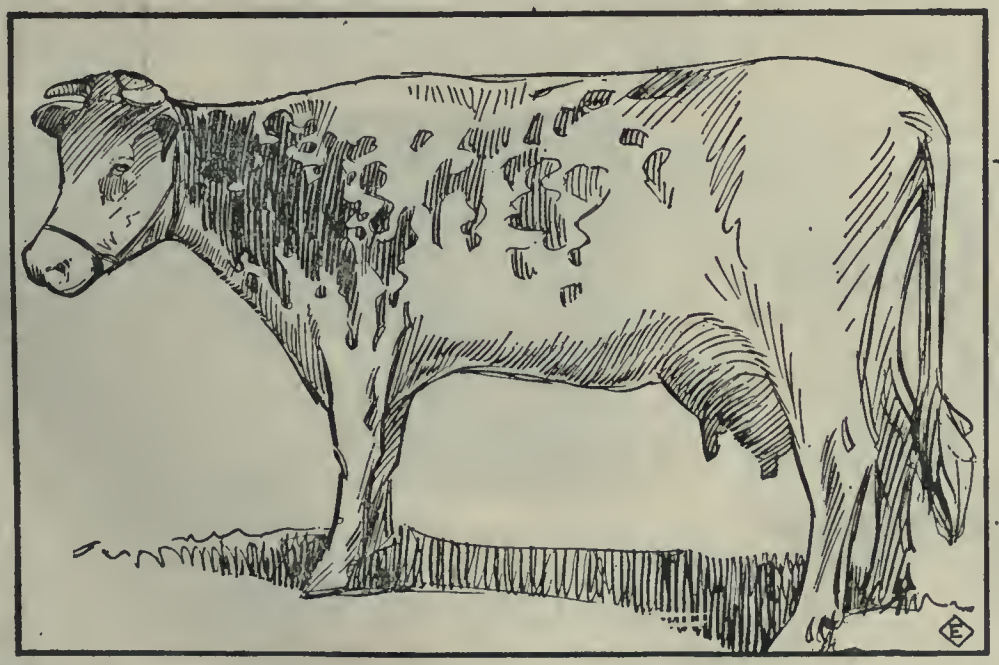

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TORONTO CANADA

FOR INSTANCE

December 12, 1908

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Toronto, Canada

Dear Sirs:—

Goods to hand this mail and perfectly satisfactory in every way. It is a pleasure to shop with you and I hope in the near future to send a much larger order.

Yours truly,

neys. I put my rule on some heading I removed for inspection and found it 1¼ inches thick, undressed. The varieties were Ben Davis and Spy.

After so many years of planting apple trees by the tens of thousands annually it seems most incredible that we have to pay 50 cents a dozen for choice Spys here to-day. I can remember 20 years ago when I purchased a 250-barrel lot of Prince Edward County, Ont., apples at 50 cents a barrel all picked and indoors, costing $1.00 f.o.h. boat. The varieties were largely Golden Russets and Spy and fine quality at that. Also, 20 years ago in Kingston, Ont., in February, I bought bananas at 50 cents a dozen. To-day I can buy as good for 15 cents a dozen.

Pine apples to-day are as cheap as they are some years in June. We have had Florida strawberries since January; of course, only the rich can taste these at 75 cents a box.

Winnipeg

Besides the Western Horticultural Society, whose influence and scope of work covers all the western provinces and which has its head-quarters at Winnipeg, there are two local societies in this city that promise to do excellent work. One of these is the Home Gardening Association which was organized recently. Its president is Controller Waugh, and its secretary Mr. J. F. Blackwood. Its purpose is to promote the interests of horticulture and to aid in making the city of Winnipeg more beautiful.

The other society is known as the Weston Cottage Gardening Association, which is designed to accomplish for that suburb of Winnipeg what the other society is planning to do for the whole city. It has been formed only a little over a year, but already has done much towards encouraging gardening. A vigilance committee has been appointed to endeavor to see that every citizen keeps his back yard clean and to see that the weeds are cut and so forth. The officers are as follows: Pres., Henry Powells; sec., A. J. Richards; treas., H. E. Penny; executive committee, W. Gee, J. Day, R. Holland, J. Baker, H. Haroop and T. Hanford. In August last this association held an exhibition of vegetables, plants and cut flowers which was most successful. Further reports of the doings of these associations will appear in later issues.

Nova Scotia

Eunice Watts

The English market has been well supplied with apples, with the result that prices are considerably lower than when last reported. There are still several thousands of barrels in the warehouses, chiefly Ben Davis, Nonpareil, Golden Russet, Stark and Salome.

Although as yet Nova Scotia is not troubled with the San Jose scale, many leading growers believe that it would be beneficial to spray our orchards with the lime-sulphur wash which would cleanse the trees from canker worm eggs, scale insects and the like.

The pruning season has again arrived, and the sap is beginning to run, (Feb. 12). There has been very little snow on the whole. As soon as the sledding got good it has been washed away by violent rains. indeed some soft days in January and February have enticed the bees to fly out in great numbers. Such rains have been succeeded by hard frosts and much ice.

The annual Seed Fair took place at Berwick on February 24th. Public meetings were also arranged under the auspices of

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NOZZLES AND FITTINGS

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the Kings County Farmers' Association. Mr. W. H. Woodworth, an expert on spraying lectured at Avonport, Grand Pre, Gaspereau, Port Williams, Waterville and Morristown.

The shipments of apples from Berwick station during the month of January amounted to 6212 barrels. A vinegar factory has recently been erected in Berwick, thus making another opening for inferior apples.

Handy Garden Tools.—Important factors in successful gardening are the Planet Jr. Farm and Garden Implements. They have revolutionized the slow, laborious old gardening and farming methods and have put them in the class of 20th century achievements. As an instance No. 4 Planet Jr. which is a combination hill and drill seeder, wheel hoe, cultivator, furrower and plow, is the most complete tool a farmer or gardener can have on his place. S. L. Allen & Company, Box 1106G, Philadelphia, Pa., who make these implements, have issued a handsome 56-page illustrated catalogue for 1909, which they are sending out to anyone interested in better farming methods and labor-saving devices.

Enclosed please find $1.00 for renewal of our subscription to THE CANADIAN HORTICULTURIST for two years. We consider it well worth twice the price of subscription and would not care to be without it, as we like to be alive to our own interests.—J. Bebbington & Son, Fredericton, N. B.

POULTRY DEPT.

Conducted by S. Short, Ottawa

This month, which is, for the average breeder, the first of the hatching season, it may be pertinent to speak of the importance of observing a few general rules which relate to how, when and where to hatch successfully. When it is considered that from the eggs which we set or incubate now depends wholly on whether in the following season we are to win prizes at the next fall and winter shows or if we are to raise healthy vigorous stock of good laying proclivities, it will be readily understood that some method should guide or direct our action.

The first matter to decide is, what are our wishes or aims for the coming year? Do we want prize winners or laying stock? Will we try pure-bred fowls or keep on the mongrels?

Many writers, more or less experienced, contend that exhibition stock is not profitable for utility purposes, that the constitution, shape and laying qualities are sacrificed for exhibition plumage, that in-breeding is practised to secure perfection in color or marking of the feathers. To some extent this is true, but not always. The writer has personally looked into the laying qualities of many notable winners and their progeny and in the majority of cases it has been found that the winning females have been remarkable layers. It is the custom nowadays for some breeders to advertise only exhibition stock and eggs from such stock, and if this particular stock has an exhibition record $5.00 per dozen eggs is the usual

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THE NEW CANADIAN Black Cap, Gibraltar, Early King, Cuthbert, Eldorado and other popular bush fruits; also strawberries. Send for list. N. E. Mallory, Blenheim, Ont.

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fee. Others advertise egg layers and utility fowl of the same breeds at $1.50 to $2.00 per 13. You can therefore "pay your money and take your choice." By asking for information from neighbors who have had experience with thoroughbreds and breeders who advertise extensively, knowledge of reliable breeders and the best breeds for the required purpose may easily be obtained. The writer recommends White Wyandottes as a thoroughly reliable utility breed and one very easy to introduce as they are generally bred in this province.

The question of "thoroughbred versus mongrel" has been so often enlarged upon that space will not now be taken up to prove what has so often been proved that, if fowls are worth keeping at all, thoroughbreds should be kept.

If the poultry-keeper has already laying pens of fowls and he intends setting eggs from his own fowls, observations through January and February will have shown him some of the best layers which should be marked by leg bands of some sort and these put in a pen by themselves until sufficient eggs have been procured for setting.

The simplest way to hatch is by incubator in a basement or room of even temperature. If hens are used, a dark room is best free from interference by other fowl. Late March and April are the best months for hatching for next winter's laying pullets.

Crop-Binding in Fowl

Editor, THE CANADIAN HORTICULTURIST: I have read Mr. Short's remarks in the November issue in respect to crop-binding in fowls. In my experience with this trouble, I employ no surgical operation. Try my way. Put the fowl's legs between your knees, hold firmly, keep the mouth up and open with left hand. Put the forefinger in the mouth and pour luke-warm water from a dipper into the crop until full. Then knead the crop until soft and stand up, holding the fowl, head down, in the right hand. With the left hand squeeze the crop. If the bird does not give up its load readily choke it somewhat and you will soon see the wheat, corn, oats and water scatter. Fill the crop again with water and empty the same way. If any grain still remains in the crop, repeat the operation a third time and then put a third of a teaspoonful of Rochelle's salts in a couple of tablespoonfuls of warm water and pour that down the throat. Put the bird in a coop by itself and in a few hours it will be the hungriest one in the flock. Feed soft food at first.

In filling the crop with water, don't pour for too long a period at a time. While treating a rooster in this way, he tried to breathe with the result that some water got into his lungs. There was a gasp and a gurgle, a kick and a struggle and there was nothing left for me to do but to plant him near a grape vine.—A. W. Graham, Elgin Co., Ont.

Naming New Strawberries

Editor, THE CANADIAN HORTICULTURIST:—I read your editorial in the January issue entitled "Name according to Sex." I think your idea is an excellent one. The only wonder to me is that somebody has not thought of it before. It certainly would be a means by which we could know the sex of strawberries without making special inquiry in the case of varieties that we were judging for the first time.

The idea is certainly worth being pushed horticulturally. As some of our other fruits also are proving to be self-sterile, the same idea might in the future, perhaps, be carried out in other self-sterile groups.—J. C. Whitten, Professor of Horticulture, College of Agriculture, Columbia, Mo.

Express your opinions on horticultural matters through the columns of THE CANADIAN HORTICULTURIST.

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The Canadian Horticulturist

Vol. XXXII APRIL, 1909 No. 4

Why We Prune*

Prof. J. C. Whitten, College of Agriculture, Columbia, Missouri

IN the management of fruit trees perhaps no other factor is of greater interest or more significant than that each section of country has a shape or ideal of its own to which each kind of tree is made to conform. We are struck by the differences between the low-growing fruit trees of the central-west and the lofty ones on the Atlantic coast; we contrast the dense heads, or branching system, of the west, and the more open, or spreading heads of the east. Still more striking are the espaliered trees of Europe, whose limbs are often trained like the ribs of a fan, in flattened form, upon a trellis or against the sunny side of a wall. Each of these different systems of pruning or shaping is a means of adapting the tree to its environment.

ADAPTING TREE TO ENVIRONMENT

In the foggy climate of western Europe it is desirable to admit all possible sunlight to the parts of the tree. The thin, open head exposes the fruit buds, flowers and ripening fruits to the favorable influence of the sun, thereby furthering what is secured in part by planting the tree on a south slope or on the sunny side of a wall.

In the dry, sunny, continental climate of the central-west of our country, a system of pruning quite oposed to that of western Europe is employed. Throughout the prairie section especially one is struck by the low, dense heads of the fruit trees. The trunks of the trees are usually from one foot to three feet high, thus securing low heads or branching systems. These low heads help to insure the trees against injury from prairie winds. They lessen the number of windfalls among the fruit. They shade the ground under the trees and prevent undue loss of moisture from the soil. Their shade keeps the soil from becoming too hot during intense sunlight in summer and opposes sunscald, which sometimes injures the exposed trunks and main limbs of high headed, open branched trees. Low heads also, in some degree, retard the blossoming period, rendering the flowers less liable to injury from spring frosts, which here so frequently follow the first warm, sunny days of early spring. The denser branching system aids in accomplishing the same purposes which are sought through the adoption of the low head.

In the various sections of the world where fruit growing is carried on, some intermediate form between the two above extremes is adopted to adapt the height and density of the head of the tree to climatic influences. Near the Atlantic coast, where there is brighter sunlight, more wind and less moisture than in western Europe and yet less sunlight, less wind and more moisture than in the continental climate of the west, the middle ground is adopted with respect to height and density of the head of the tree.

In extreme continental climates, the low, dense head is in keeping with the selection of a north or east slope for the orchard. This is an interesting contrast to the south slope, or sunny location preferred in western Europe.

Ten Years in Advance

I am glad that THE CANADIAN HORTICULTURIST devotes more space than formerly to the growing of flowers, in which I am much interested. I am sending $5.00 for my subscription up to the end of 1918.—Mrs. P. E. Harvey, Toronto.

FUNGOUS DISEASES AND PRUNING

In recent years attention is being given to shaping the tree so as to oppose fungous diseases. Leaf rust, fruit scab, many of the rots and many other maladies which affect fruit trees are now known to be due to parasitic fungi that attack the parts of the tree or its fruits. Many of these parasites thrive better in cool, damp, shady places than they do in sunlight, just as molds develop in cellars or damp places. In a foggy, humid climate the high, open head admits sunlight and air and opposes the development of these diseases. In a dry, sunny, or windy location it may not be necessary to maintain an open head to secure enough sunlight and aeration.

WOOD GROWTH AND FRUITFULNESS

In connection with pruning it should be borne in mind that other factors than merely shaping the tree to adapt it to climatic conditions must be taken into consideration. Fruit trees may be said to expend their energies in two ways—by producing wood growth and by producing fruit. It is a well known fact that a fruit tree may sometimes grow with exceeding luxuriance and fail to produce fruit. In fact, too much wood growth and leaf growth is opposed to fruitfulness. The orchardist often says of a vigorous tree that it is "running to wood growth" instead of to fruit. Anything which tends to check this excessive vegetative activity usually throws the tree into bearing, or favors reproductive activity. On the other hand, the production of a heavy crop of fruit opposes excessive wood growth.

A proper balance between vegetative and reproductive activity (or wood growth and fruit production) may in part be maintained by proper pruning. If a tree is pruned by cutting back or by removing some of its branches in winter, its wood growth will be accelerated during the following growing season. If a part of the buds which normally would have been pushed into growth in spring are removed, there will be correspondingly greater growth from the fewer buds which remain. If this length growth is excessive, and if it continues too late in the season, few or no fruit buds may be formed for the next year's crop. As a rule, length growth of limbs is continued at the expense of diameter growth and storage of plant food in the twigs and buds. Fruit buds usually begin to form in early summer, for the coming spring, about the time rapid growth ceases. The maxim, "prune in winter for wood but in summer for fruit" is an old one.

Cutting out or shortening limbs in summer, when the leaves are elaborating plant food, usually checks wood growth and thereby often favors the formation of fruit buds. Whether to prune more in winter or in summer depends much upon the vigor of the tree. If vegetative activity is weak and the energies of the tree too low for the maturity of a good fruit crop, winter pruning tends to increase its growing energy. If the tree is making too luxuriant wood growth, summer pruning (checking this growth) may result in the formation of fruit buds.

*An address delivered at the last convention of the Illinois State Horticultural Society. Its principles may be applied in the orchards of Canada.

It should be borne in mind that different kinds of fruit trees endure different degrees of pruning and that they respond somewhat differently to the treatment. The cherry requires very little pruning. Its most active buds are the extremities of its twigs. If it is severely cut back, the inactive buds that remain may not start steadily into growth. The tree may even weaken and die from severe pruning. The cherry requires the least pruning of any of our orchard fruits.

Tree Sprayed with Lime-Sulphur Wash
Showing White Appearance

On the other hand, the peach profits by severe pruning. It should be severely cut back in winter. It readily puts out new growth even from the bases of old limbs after cutting back. It has no "dormant" buds which may not be called into activity if occasion requires. Again, it should be particularly noted that the peach produces abundant fruit buds on the long whips of new growth at the periphery of the tree. This is opposed to the habit of the apple and of most other fruit trees, which produce buds only on short spurs in the body of the tree.

If a peach tree is cut back in winter so as to produce rank wood growth, it will still produce fruit buds along this new growth. If an apple tree were pruned back so as to secure equally luxuriant growth, this new growth would possess no fruit buds of its own, and by seizing the sap of the tree, these new whips would divert growth from the fruit spurs below and would also overshadow the latter by producing too much shade above.

(To be continued)

Fruits for Manitoba

The best varieties of fruits for planting in Manitoba are recommended by Mr. D. W. Buchanan, of St. Charles, Man., to be as follows:

Apples — Blushed Calville, Antisette, Duchess, Hibernal; hybrids—Transcendent, Virginian, Hyslop; plums — Atkin, Cheney, Mankato, selected native varieties; cherries—improved sand cherries; strawberries — Bederwood, Wm. Belt, Dunlop, Splendid, Crescent, Warfield; red raspberries—Older; White currant—White Grape; red currants—Red Dutch, Raby Castle, Stewart, Pomona, Red Cross, North Star; black currants—Lee's Prolific; gooseberries—Houghton, Downing.

Raspberry Culture

N. E. Mallory, Blenheim, Ont.

A fertile, porous soil, with water within five or six feet of the surface, might be termed an ideal place for black-caps; yet, any good fertile soil that is well drained and contains a good amount of humus, properly prepared and cultivated, can be depended upon to produce abundantly.

The black-caps are largely surface feeders. The roots, therefore, should be trained out of the reach of the cultivator. This can to a large extent be accomplished by proper preparation and culture. Spread evenly from ten to twenty tons of stable manure per acre, preferably on a clover sod. Plow about six inches deep and prepare as for an ordinary crop.

Plant as early in spring as conditions will permit, setting in rows eight feet apart and four feet in the row, or five or six feet apart each way. The crown of the plant should not be set more than two inches deep with the roots spreading outward and downward. Pack the soil firmly against the roots but not directly over the buds. Give frequent cultivation until about the tenth of August, when three bushels of oats per acre should be sown for winter protection.

By the fall of the second year the roots in their search for plant food will be largely below the reach of the cultivator yet close to the surface. After this, manure can be applied with good results.

The first season, nip the tops off the new canes when eighteen inches high—the following year, when two and one-half feet high; in early spring cut the laterals back to about three inches. Cut out the old wood as soon as fruiting is over, thinning to four or five of the strongest canes to the hill.

Red raspberries should receive almost the same culture as black-caps. Plant one foot closer each way and five inches deep. Trim only in early spring, cutting the fruiting canes back to three feet.

Fruits for Saskatchewan

For Saskatchewan, fruits that have done well in some parts of the province and that reasonably may be expected to give satisfaction in most districts where fruit growing has been conducted, are recommended by Mr. Angus MacKay, Superintendent, Experimental Farm, Indian Head, as follows: Crabapples—Wild Siberian (*Pyrus baccata*), Silvia, Golden, Cavan, Aurora, Northern Queen, Novelty, Pioneer, Prince, Charles, Tony, plums—Aitken, Weaver, De Soto, Manitoba wild plum, Cheney, Carterson; cherries — Sand, Compass, Pin and Choke cherries.

The varieties of small fruits that may be planted, according to Mr. MacKay, are the following: Strawberries—Dunlop, South Dakota No. 1; South Dakota No. 2, Bisel, Daisy, Daniel Boone, Johnson's Early, St. Antoine, St. Joseph and Jean d'Arc; red raspberries—Dr. Reider, Marlboro, Cuthbert, Herbert, Miller, Turner, Mary, Garfield, Columbia, Palmer; yellow raspberries—Golden Queen, Caroline; black raspberries — Hilborn, Older; red currants—Red Dutch, Victoria, Raby Castle, Fay; white currants—White Cherry, White Imperial, White Grape, White Dutch; black currants—Lee's Prolific, Magnus, Climax, Black Naples; gooseberries — Houghton, Smith's Improved, Pale Red, Red Jacket, Carrie, Saunders, Downing, Edna, Companion, Industry.

Picking Raspberries on Farm of Mr. N. E. Mallory, Blenheim, Ont.

On small home grounds, knapsack spray pumps may be used with advantage.

Peach Yellows, Little Peach and Peach Rosette*

M. B. Waite, Pathologist in Charge, Investigations of Diseases of Fruits, U.S. Department of Agriculture

THE "little peach" disease is important inasmuch is it occurs quite seriously in Michigan, New York and Ontario. This disease resembles yellows in many respects,particularly in its foliage symptoms, yet it is very distinct, in fact the opposite in other respects, namely, its fruit symptoms. The fruit on trees affected by "little peach" is undersized, belated in ripening but similar in color and appearance to the normal fruit, especially to imperfectly developed specimens. It is rather flat and insipid but not so distinctly off-flavor as in the case of the yellows. It may be only slightly reduced in size in mild cases or in extreme cases may be reduced to tiny peaches less than three-quarters of an inch in diameter. Trees affected by the little peach rarely produce the wiry, bushy growth. When forced to throw water sprouts by heavy cutting back or winter killing, they do to some extent make twig growth resembling yellows.

Trees with the little peach *usually* roll their leaves upward and droop the foliage as yellows occasionally does. The leaves begin to discolor on the inside of the tree, especially on the main limbs and the yellowing proceeds outwardly as the season advances. "Little peach" is quicker than yellows, killing the tree ordinarily in three years instead of four or five years. The twigs die back from the top in the same way. It apparently spreads more rapidly in the orchards and since it has not the premature red spotted fruit its symptoms are more obscure and more difficult to recognize. This makes it rather harder to handle than the yellows. The "little peach" occurs mainly in Michigan, Western New York, and to some extent in Ohio, Pennsylvania and New Jersey.

PEACH ROSETTE

The rosette which occurs in Georgia and the neighboring state of South Carolina and also to some extent in Missouri and Arkansas, is still another disease of the same type. It is only interesting to Ontario growers for comparison. The affected trees produce small, very short, bushy growth like extreme cases of the yellows, but they are so dense as to form small rosettes or bunches of leaves on the trees. The affected trees usually throw their fruit while it is still small and the trees, in fact, are usually dead by the time the fruit should ripen. Occasionally trees partially affected produce small green, shrivelled and imperfectly developed fruit, but it is not premature. On the healthy side of half diseased trees, which only rarely occur, the fruit is normal. The trees mostly die, root and branch, before the season is over. This rapid death of trees affected by rosette is a distinct advantage to the orchardist as the disease mostly eradicates itself.

HOST PLANTS OF YELLOWS GROUP

Peach yellows occurs mainly on the peach but it also occurs on the Japanese group of plums sufficiently to be of importance as a plum disease. So far as we know, other plums are not affected by it. It also occurs on the nectarine (the smooth form of the peach), and on the almond and apricot, these latter being, of course, only occasionally grown within the range of this disease.

Spraying by Hand Power in the Essex Peninsula of Ontario

Orchard of J. O. Duke, Ruthven, Ontario. This illustration shows an excellent way to mount a hand pump. There is plenty of room fer the operators to work.

The "little peach" is known only on the peach and Japanese group of plums. It may possibly also attack some other stone fruits. The Japanese plums are so peach-like that they form ready hosts for these diseases. The rosette occurs on the peach and on the native Chicksaw plum, and probably also on the Japanese group of plums.

Apparently peach yellows and peach rosette are native American diseases. If this is the case, they are doubtless diseases of our native stone fruits just as year blight is with some fruits. Rosette is probably a disease of the wild Chicksaw plum. "Little peach" may possibly be a native American but I doubt it, since it only recently appeared and the date of its appearance some twenty years ago corresponds with the introduction of the Japanese plum into American horticulture. My suspicion, therefore, is that it was introduced with the Japanese plums, but further investigation, particularly in Japan, would be necessary to determine this.

YELLOWS ON NURSERY STOCK

Unquestionably yellows can be budded into nursery stock. This has been done experimentally, notably by Smith. I have done it myself in a number of cases. Naturally well-marked specimens are selected for this purpose. Nurserymen ordinarily would not bud from pronounced cases of the yellows. On the other hand, incompetent help may secure bud sticks from diseased trees, but what is more likely, buds may come out from incipient or incubating cases which do not show the true symptoms at the time. Smith transmitted the disease by budding from the apparently healthy side of a diseased tree. Unfortunately buds cut from yellows trees slightly affected grow fairly well in the nursery.

This is not the case, however, when pits are used from diseased trees. So far, all attempts to grow trees from diseased pits have failed. Recently I planted 100 pits from trees well marked with yellows, with premature red spotted fruit, and 100 pits from typical cases of "little peach." None of these grew. Not a single seed germinated. In all cases, so far as I know, where pits from well-marked diseased trees have been used, a similar result has been obtained. If this could be assumed to be always true, it would remove one great possibility of reproducing disease. Unfortunately we do not know what happens when pits are taken from trees only slightly affected or from

*The fifth instalment of Mr. Waite's address on "Fungous Diseases of Ontario Orchards," given at the convention of the Ontario Fruit Growers' Association.

incubating or incipient cases. There is then a certain amount of suspicion justifiable as to trees propagated from pits grown and buds cut in yellows-infected districts. I am inclined to think that this possibility of yellows transmission has been rather overworked, however, by orchardists.

REPLANTING AFTER YELLOWS

The trees can be replanted where yellows trees have been dug up and they will live and bear well. This has been demonstrated repeatedly for over forty years, both in New York state and Michigan. I recall very clearly some excellent cases of this sort in the Niagara county fruit belt in the orchards of Dr. C. A. Ring and Mr. Jesse Lockwood. Some orchardists have combatted this idea and held the opposite opinion but it should be remembered that replanted trees have the same opportunity to catch the disease as the original tree. In fact, experience shows that yellows causes less trouble in replanting, and the same thing is true of "little peach" disease, than root rot, black peach aphis, eel worm disease, or other root diseases. All of these in fact live over in the soil and cause serious trouble on the young tree set in the place of the one dug out. This is, of course, quite another matter from the yellows question.

Window Boxes, Hanging Baskets and Rustic Stands*

Wm. Hunt, Ontario Agricultural College, Guelph

THE main point to be considered in selecting plants for a window box, hanging basket or rustic stand, is their suitability for the position they are to occupy as regards a sunny or shaded position. As a rule, plants that succeed in a sunny position, will succeed to some extent in a shaded position, with poorer flowering results possibly. Plants suited particularly for a shaded position, however, will not succeed well in a burning, sunny position, even with the best possible care and culture. This fact should be borne in mind when getting a box filled by a florist or in selecting plants to fill the box or stand yourself, as it is one of the main points leading to success or failure. Tell the florist whether the plants are for a sunny or a shaded position when getting a box filled.

The tall growing plants are best suited for the back row of the box, the low growing and those of a trailing habit for the front and ends, and intermediate sized plants for filling in between the back and front row if necessary. In filling rustic stands and hanging baskets, place the taller growing plants in the centre.

Another point in the selection of plants, is not only to have good sized plants, but to have plenty of them so as to furnish the box well at once, planting so that there are no bare-looking spots when

Box Filled for Sunny Position

finished. To have a bright and pleasing looking effect select chiefly bright, light-colored foliage plants, as well as a preponderance of the lighter shades and colors of flowering plants. A good admixture of white, pink, blue and yellow should be used to brighten up and relieve the ground-work of dark green foliage and the heavier shades of scarlet flowers so often seen in window boxes. Brightness is one of the main points to be considered in the effectiveness of window boxes, baskets and rustic stands. The following list of plants includes most of the varieties that can be effectively used for sunny or shaded positions:

Tall Plants for Sunny and Slightly Shaded Position.—Dwarf cannas, lantana, coleus, salvia, irisene, geraniums, ivy-leaved geranium.

Low Growing and Trailing Plants.—*Vinca Japonica,* periwinkle (*Vinca minor*) nasturtium, *Othonna crassifolia,* annual and perennial sweet alyssum, dwarf ageratum, creeping Charlie, dusty miller (*Centaurea gymnocarpa*) *Mesembryanthemum roseum,* petunia, verbena, Mme. Salerio and other fancy geraniums, *Gnaphalium lanatum, Gazania splendens* and perennial tropæolums.

For very Sunny Position.—Cacti, echeveria, agaves, *Sansevieria zeylanica,* aloes and other succulent plants can often be made use of.

Tall Plants for Shaded Position.—Palms, dracænas, cyperus, fuchsias, begonias, aspidistras, araucaria, rubber plant (*Ficus elastica*) *Asparagus plumosus, Pandanus Veitchii, Pandanus utilis* and crotons.

Sweet peas, convolvulus, tropæolums, *Cobea scandens* and climbing nasturtiums can also be used very effectively in some positions as a background, as well as forming a shade for the window.

Low Growing Trailing Plants for Shaded Position.—Lobelia, cigar plant (*Cuphea*) nasturtium, *Tropæolum canariensis,* tradescantia, senecio or German ivy *Lophospermum scandens, Campanula isolepsis, Convolvulus minor,* leopard plant (*Farfugium*) *Anthericum variegatum, Asparagus Sprengeri, Festuca glauca, Scirpus riparius.*

Many of the plants mentioned, such as salvia, ageratum, petunia, verbena, centaurea, *Cobea scandens,* lobelia and tropæolum can be grown from seed. Sow the seed indoors about the end of March or early in April, and grow indoors until end of May or early June. Sow nasturtium, *Cobea scandens* and tropæolum seeds, two or three seeds in a small pot, as they do not transplant very well. There

Box Filled for Shaded Position

is probably no one kind of plant better suited for window boxes than both the dwarf and tall nasturtiums. They are indispensable for this class of plant decorative work. Seeds of these last named sown in the window box about the end of May will of themselves make a pleasing effect in a box or stand, but are later in flowering.

*The conclusion of Mr. Hunt's article that has been running in recent issues.

Worms in Flower Pots.

The earth around some of my plants seems to be filled with tiny worms. Can you tell me how to destroy them ? Will it be necessary to repot the plants with fresh earth? As my palms are large, I would like to avoid this if possible. What is the cause of the trouble?—Mrs. W. E. T., Bowmanville, Ont.

Worms may be removed from pots very easily. If the pots are small turn them upside down and strike the edge of the pot on something hard, when it can easily be removed. The worms can then be seen and may be picked out of the soil. If the pots are large, and not easily removed, take a lump of lime unslacked, as large as one's fist, and place in a half gallon of water. When slacked and the lime settles to the bottom of the can, water the plant with the water, and the worms, if any, will soon disappear, and the roots will be benefitted by the warming from the water.—Roderick Cameron, Toronto.

Read our Special Seed Offer.

Remedying the Sweet Pea Blight

Max. Moineau, Toronto

WHOEVER plants sweet peas in a ditch and leaves it open, to be filled in as the young shoots develop, runs the risk of losing the entire crop. Last year I was induced by a professional grower to try this method, with the result that nearly half of my valuable collection was lost. I had some beautiful novelties from England and the United States, and with an aching heart I saw many of them die, after having given the greatest promise. This led to an investigation, a remedy and a resolution.

I had planted on April 17th, with a covering of about two inches of good earth, the remainder of the ditch being left open to about three inches. By May 15th, there was a beautiful array of young shoots, and I began to fill in with more earth, in the gentlest manner possible. Then came the heavy rains and soon my young plants were standing "knee deep" in water. My subsoil being heavy clay, the drainage was very poor. The wet spell was prolonged, and the water stood in the trench until the earth became almost of the consistency of mortar. Whenever possible I filled in dry earth to counteract the trouble, but in spite of the greatest care a number of the young shoots were broken off or otherwise damaged, and whenever the sun shone strong the earth baked on top and soured beneath. Consequently, when my plants were about ten inches high they began to turn yellow, and die. Pulling these up, I found in every instance the roots rotted away, and a very bad odor. Nearly one-third of my plants were dead before I discovered a remedy.

The earth was sour. To counteract this, I prepared lime water, by slacking a lump of lime, about the size of my fist, in a pail of water and letting it settle. I then made an irrigating ditch close to the roots of my peas, and every other day for a short time, poured into it a pail of lime water, being careful not to let any of the lime get upon the vines or the earth. Then, refilling with water the pail containing the lime, I left it to saturate for the next time, and about every three days, for a while, repeated the treatment. In about two weeks my peas were looking quite healthy, and the blight had ceased. The trench meanwhile having been filled up, and the danger passed, I was finally rewarded by a beautiful bloom upon the remaining vines; but the intervening spaces made by the "blight," spoiled the fine appearance which I had anticipated.

From this and past experiences, I resolved that wherever the subsoil is clay, the following method would be more profitable: Dig out the earth to the depth of the subsoil, about two spades wide. Fill in about six inches of well rotted horse manure, and, according to accompanying diagram, dig this into the subsoil (a) a spade deep. Then lay a drain pipe (b), the kind the builders call "weepers"—or broken stones will do if weepers are not available—over which fill

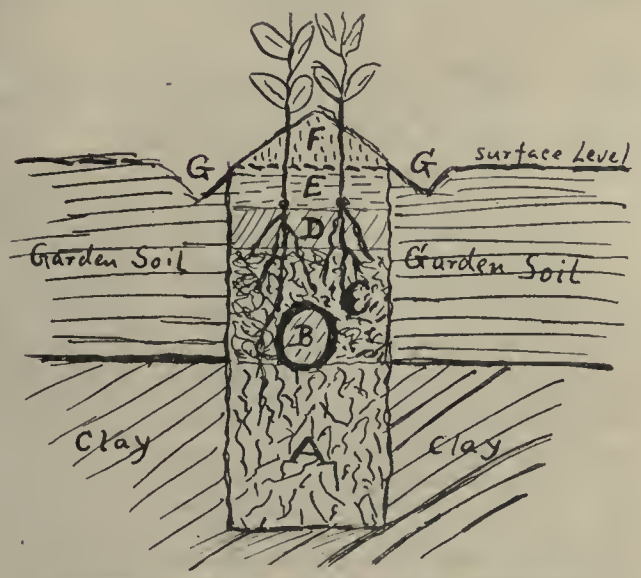

Diagram of Sweet Pea Trench, Described in Accompanying Article

in another six inches of well rotted horse manure (c). Over this place two inches of good clayey loam (d), finely broken up, and then sow the seed in two rows, alternately, three inches apart, thus, ... Fill in the remainder of the trench until a little above the surface level, with good clayey loam (e), with which equal parts of fine bone meal and hard wood ashes have been carefully mixed, say about a pint to the running yard. When plants are on the strings, say twelve or eighteen inches high, hill up the earth about three inches (f), leaving an irrigating ditch at each side (g). This method will insure plenty of moisture, and at the same time establish sufficient drainage to prevent "damping off," otherwise known as the sweet pea blight. Sweet peas require an abundance of water, but good drainage is absolutely imperative to prevent "damping off." After the plants are in bud, through the medium of the irrigating ditch, feed them with liquid manure once or twice a week.

The following preparation is an excellent fertilizer: One part nitrate of potash (salt-petre), two parts of superphosphate, eighteen to twenty per cent.; two parts of sulphate of ammonia, or two parts of nitrate of soda. Dissolve half an ounce of the mixture in one gallon of water, and apply carefully so as not to allow the liquid to come in direct contact with the foliage.

For aphis and red spider, use a solution of "Sanitine." This is a soft soap made from linseed oil. It is one of the finest insecticides that I have ever used. It not only keeps off insects, but it leaves the vines glossy and healthy. To one teacupful of Sanitine, add eighteen teacupfuls of water and boil until thoroughly dissolved; then of this, when cool, take one teacupful to which add one gallon of water. With this mixture spray your vines twice a week.

Don't forget to apply the grass mulch to keep the soil from drying out. Water frequently and thoroughly in dry weather.

Growing Sweet Peas

By a Member of St. Catharines Horticultural Society

Last year, I took the advice of Mr. Max Moineau, who contributed articles on sweet pea culture to the January and February, 1908, issues of THE CANADIAN HORTICULTURIST, and bought those novelties that I could secure. It was the first time that I ever did this. We always bought them by the pint in all colors, but we will never do so again, for the separate colors are so far ahead of the others. I had the grandest flowers that I ever saw. I had white Spencers with four on a stem and great large flowers, but I have found out that sweet peas do not like wet feet, for some were planted in a low spot and they soon turned yellow.

I like striped and flecked peas by themselves and not in a bouquet with others. We plant all our sweet peas in a trench, as Mr. Moineau described, and the striped ones were filled in with chicken manure. They got no other feed all summer, but they were near the back door where we threw our wash water, and I had to make a little drain along the side of them for the water to run away. They had stiff stems, with three or four large flowers on a stem; two on the stem was the exception rather than the rule. The foliage was bright and green until the frost killed them. I think that the wash water had much to do with making them so beautiful. I am going to try it on some more this summer.

Our garden soil is sandy, so we plant everything quite deeply. We drop the peas three inches apart. By planting deeply, they are not so apt to be pulled up out of the ground. I tried Mr. Moineau's plan of tying with the string and like it ever so much better than wire netting. The fault with wire is that you

cannot cut the flowers easily. You have got to get on both sides to cut them. We find that they do better without too much water. That may be because I take a hand cultivator and pull it around them every day. I don't think I missed a day without stirring up the soil. I was told that it was not necessary to work the ground so much, but I wanted nice flowers, and I had them.

How I Grow Freesias

Editor, THE CANADIAN HORTICULTURIST,—In your February issue you ask readers to tell their experience with freesias in the window garden. We have grown freesias successfully in winter for over twenty years. The treatment we give is as follows:

A Pot of Freesias

Fill each pot with bulbs closely planted, as they are small, and neither the narrow knife-like leaves, nor the slender stalks take up much space. Use rather shallow pots, with moderately rich soil, preferably decayed leaf mould (woods earth), leave in a sheltered place for about two weeks, and then place in a sunny window. Water moderately.

Freesias come to us from the Cape of Good Hope under burning skies; therefore, they like the heat of the sun. If they do not get lots of sunshine the grass-like foliage will grow tall and limp, fall over and no bloom will appear. If planted about the beginning of September, they will bloom in February and fill the house with sweet incense all their own. The perfume alone of the freesia would make it a favorite, but added to this charm is its perfect beauty.

When done blooming, set the pots in the cellar or dark place, safe from mice or squirrels. In the fall take them from their grave and you will find the bulbs just as good for forcing as ever, with many others added.—Mrs. W. J. Arnott, Churchill, Ont.

Grass can stand more cutting than weeds.

While the snapdragon is increased usually by seeds sown in the open, it may be propagated also by cuttings taken in late summer and early fall, when they will readily root in a cold frame or in the house by the window.

The best tying material for tying up plants in the greenhouse, window garden or outdoors, and for budding, is raffia. It comes from the eastern tropics, and is the product of a palm. It may be purchased from seedsmen.

Planting for Winter Effect in the North*

George Edward McClure, Buffalo

ONE of the best opportunities for brightening up the winter landscape is offered to us with a lavish hand in the bright colored branches or twigs in shrubs and trees. Who of us has not been charmed, after the leaves have fallen, with a large mass of the red osier dog wood (*Cornus stolonifera*), as seen from the window of a train? The effect is lasting. A number of the cornus are useful in planting for winter effect. The best are *C. alba Sibirica* and *C. stolonifera* for red stems, and *C. stolonifera* var. *flaviramea* for the yellow effect of its branches. When planted in large masses beside the brilliant green branches of *Kerria Japonica*, the effect is really wonderful. There are numerous species of cornus, among which might be mentioned *C. Amomum* and *C. circinata*, with bright colored bark, which gives us shades of color which are useful for winter effect, and as their berries are quite persistent and usually of a bluish-white shade, the contrast between stems and fruit is good. The red stems of *Rosa lucida* are also used to advantage.

In large shrub borders, along margins of ponds and edges of creeks, the brilliant osiers form an important part of the winter landscape. About the best are the golden-branched willow (*Salix vitellina* var. *aurea*), and the variety, *Britzensis*, with reddish branches. The basket willow (*Salix viminalis*) has also bright yellow stems and is especially valuable. The purple osier (*Salix purpurea*) gives us a chance to introduce a purple hue into the winter landscape, which in the distance is particularly enchanting. *Salix palmæfolia* has also purple branches and is very useful. As a purple branched shrub the purple-leaved barberry (*Berberis vulgaris purpurea*) is often used in small plantations.

For grey effects in stem and twig coloration, we can resort to the sea buckthorn (*Hippophæ rhamnoides*), and to one of the oleasters, (*Elæagnus argentea*). Effects in grey are sometimes very desirable in the winter landscape picture. For effects in green branches, we have the grass green stems of *Kerria Japonica*, the green stemmed variety of the red dogwood (*Cornus sanguinea viridissima*), and the golden bell (*Forsythia viridissima*).

We look to the coral berry (*Symphoricarpus vulgaris*) for a magenta shade. For soft brown shades we have ample opportunity to select from a long list, such as *Stephanandra flexuosa*, *Spiræa callosa*, the golden bell (*Forsythia suspensa*), the tree of heaven (*Ailanthus glandulosa*), *Cratægus crenata* and many others.

Many fail to notice the beautiful soft effects that can be obtained by mass planting of the brown-stemmed shrubs and trees, but it is particularly agreeable during the months of January and February to see a mass of brown stems as a relief from the blinding glare of the sun on the snow. It is then that we value the brown-stemmed shrubs along with the osiers and dog-woods.

In order to secure exceedingly good effects in stem coloration, it is well to remember that the highest color is produced in the growth of the current year, and in order to secure this growth we must not be afraid to prune heavily in the spring, so as not to destroy the effect in winter. This is particularly true of the willows, dogwoods and kerrias.

STUDY THE WINTER EFFECT

All planting should be done to a definite purpose. If it is for a place that is to be occupied throughout the entire year, we should not fail to make ample provision for the effect which we can produce in the winter. If successfully planned, such a planting would be a work of art, which would not only appeal to every artistic eye, but would at the same time serve as an education to the people.

The efforts of many landscape gardeners in the past have been to plan for summer effects only, and we are often sated with the profusion of summer bloom. It is in the winter that we more fully appreciate what we get by way of color and tone.

Too often we see the home grounds arrayed with bundles of straw, burlap, and barnyard refuse, and graceful shrubs which are absolutely hardy and need no protection, tied up in an unspeakable manner, suggestive of the hair dressing of an African chief.

The effective arrangement of plants for winter effect can never be taught, as it is more difficult than the more or less stereotyped summer effects can possibly be, yet it is worthy of careful study and will repay every effort. Winter travel and constant observation will enable us to add to our storehouse of knowledge. The growing desire for out-of-doors exercise, especially in winter when indoor ventilation is so often neglected, cannot be too much emphasized, and if it can be stimulated by the creation of better winter gardens and by rendering more beautiful the great out-of-doors, in the winter season, the art of the landscape profession will have taken a long stride forward.

*The conclusion of Mr. McClure's article which appeared first in the February issue

The best nursery stock should be free from insects, disease and blemish. It should be well grown, clean and straight.

Plant of "Snowdrop"
A Pompon Chrysanthemum

Spray of "Baby"
Smallest Flowered 'Mum Grown

Spray of "Julia Lagravere"
A Pompon

Spray of "Kloodike"
A Yellow Pompon

Chrysanthemums for the Home

Wm. Hunt, Ontario Agricultural College, Guelph

THESE popular autumn and early winter flowering plants cannot, on account of their rather short period of effectiveness as decorative plants, be considered as ideal window plants. A plant or two, however, when in full bloom will help to brighten up the window during the dull days of November and early winter, better perhaps than any other window plant grown.

STARTING PLANTS FROM CUTTINGS

To secure a good flowering plant by fall the cuttings should be started during February or March, although cuttings rooted in April will often make nice plants. The cuttings are taken from the young growth that is produced around near the base of the flowering stems of old plants that have been kept over from last season, or from tops of young plants. Root the cuttings in clean, sharp, gritty sand, not too coarse. The cuttings will root in a temperature of from fifty-five to sixty degrees.

When rooted, which generally takes from five to six weeks or longer, pot the cuttings singly into small two and a half or three-inch pots, or several cuttings in a larger pot or box. The pots or boxes must have holes in the bottom to secure good drainage. Some broken pieces of flower pot or some coal cinders, coarse gravel or pieces of lump charcoal, should be placed in the bottom of the pots or boxes, also, for drainage purposes.

Good potting soil with about one part of sand to four or five parts of potting soil should be used for the first potting. When the plants are well rooted in these, re-pot them singly into larger pots. In re-potting the plants, give them a stronger or richer potting soil than before, using only one part of sand to seven or eight parts of rich soil. In potting these plants the soil should be packed quite firmly around the roots; packing the soil firmly is very necessary when re-potting them. The plants can be stood out of doors on fine, warm days towards the end of May to harden them.

About the first week in June the plants can be removed carefully from the pots and planted out in the open garden in rich, loamy soil. The tips of the young shoots should be kept pinched or cut off from all the ground made, when the young shoots have attained about seven or eight inches in length. This should be done at intervals, from the time the cutting first reaches the height given, until about the second week in July. After this time the shoots should be allowed to grow without being cut off or stopped. Checking the young growth in this way produces a nice bushy plant and a larger quantity of bloom, than if the plant were allowed to grow unchecked. Young plants of chrysanthemums can also be purchased in spring and grown as directed.

PLANTS FROM DIVISIONS OF ROOT

Instead of starting the plants from cuttings the old plant may be taken out of the pot and divided into small sections or divisions in March or April. Each division or section should have from one to four or five young shoots of growth attached to it, with a fair portion of roots attached to each division. Pot these divisions into suitable small sized pots first—according to the size of the division or clump of roots—into the same kind of soil, and so forth, as mentioned for rooted cuttings. Re-pot them when well rooted in the small pots into larger ones as required, and plant out in the ground early in June. The tips of the growth of these should also be kept pinched or cut off until early in July.

The plants require to be kept well

Cutting Ready for Insertion in Sand — Rooted Cutting Ready to Pot

Rooted Cutting in a Three-inch Pot — Pinched Back to Induce Bushy Growth

moist at the roots; water should be given them freely in hot dry weather.

AFTER-CARE OF PLANTS

The plants should be kept sprayed or sprinkled overhead with water every day during hot dry weather. The underside of the leaves especially should also be sprinkled to prevent the attacks of the red spider. The latter is a very small minute pest that attacks the underside of the leaves of these plants and is very injurious to the plants if not checked. The black aphis or black fly (small black insect) are also troublesome to these plants. A good hard spraying with cold water or a spraying with a strong solution of tobacco water will keep down the black fly. Start early in the application of these remedies; indeed, they are both more effective as preventives rather than remedies.

Another insect pest that is very injurious to these plants is a small brownish fly-like bug called the "Tarnished Plant Bug" (*Lygus pretensis*). This insect attacks the extreme tips of the shoots and prevents the development of the young buds, leaving what is known as "blind growth" that produces no flowers. By examining the tips of the growth carefully early in the morning during July and August, this pest can be caught at its work of destruction, but the plant lover must be quick in his movements to catch these quick moving pests as, on the first alarm, they either drop down among the foliage or fly away so quickly that it is difficult to catch them, especially in the middle of the day when the sun is shining. Spraying the plants at night with cold water and dusting the foliage, especially the tips of the shoots when damp, with tobacco dust, pyrethrum powder, soft coal soot, wood ashes, or even road dust will help to keep away this destructive pest. This plant bug is also very injurious to aster and dahlia plants, attacking the tips of the young growth and buds when the latter are very small, in the same way as it does the chrysanthemums.

About the end of August the plants should be dug up carefully and potted into larger pots or tubs in rich soil. Water the plants well and stand them in the shade for a few days or a week after potting, when they can be stood out in a sunnier position. Sprinkle the foliage every day when the weather is hot and dry. Keep the plants out-of-doors as long as the weather is nice. Take them into the window before frost. Place them in a sunny place, away from fire heat. A cool temperature of about fifty-five degrees suits these plants, as they are almost hardy in their nature. Some liquid manure may be given the plants at any time during growth when required, until the flowers start to color, not after coloring commences.

When the flower buds are about the size of peas, which will be about the end of August until end of September, what is known as the "disbudding" process can take place, if only a few large flowers are desired. The thinning or disbudding is done by removing carefully with the thumb and finger some of the smaller buds on each shoot. This practice is not very commonly used by amateur flower growers, as it requires skill and experience to be successfully carried out. A few of the smaller later buds can, however, often be removed to advantage.

GROWING PLANTS IN POTS

Instead of planting the plants out in June as before mentioned, the plants can be potted out into large pots and the pots plunged or sunk to the rim in the ground. This plan does away with the trouble of digging and potting the plants at about the end of August, as the pot, plant and all, can be lifted when ready to take indoors. This plan also prevents the check to the plant consequent on the lifting and potting process. I do not advise growing the plants in pots in this way, however, as unless they are well cared for in the summer they do not make as good plants as when planted out in the ground.

Some liquid fertilizer is beneficial to the plants if required during the summer, but not after the flower buds commence to show color.

CARE OF OLD PLANTS

When the plants are through flowering, cut the flower stems down close to the ground. Stand the plants away in a cool window, or in a basement or cellar, in a temperature of about forty-five degrees, for the winter. Give them sufficient water to keep the soil moist. In the spring, start the plants into growth and treat them as before recommended.

VARIETIES FOR HOME CULTTRE

The following list gives a few good varieties for pot culture for the window: Glory of the Pacific, pale pink; Dr. Enguehard, rose pink; Miss Minnie Bailey, pink; George S. Kalb, white; Ivory, white; Pink Ivory; Major Bonaffon, yellow; Robert Halliday, yellow; Nellie Pocket, creamy white; Intensity, dark crimson.

Pompons.—Snowdrop, white; Diana, white; Dupont, yellow; Klondike, yellow; Alena, pale pink; Ladysmith, pale pink; Mizpah, rose red; Julia Lagravere, deep red. The pompons are specially suited for pot culture, being of a bushy habit and very free flowering.

Lawn and Garden Hints for Amateurs

MANY gardens are the same every year. Why not have a greater variety? Try some new things this spring. In the vegetable garden, grow bush lima beans. Swiss chard is much better than ordinary beet leaves for "greens," and it produces much more top. Plant some Brussels sprouts. Try some cos lettuce. Kohl-rabi is excellent if used before it gets too old. Dandelions may be grown in the garden from seed. Among other vegetable and salad crops not commonly grown are endive, Chinese mustard and cress.

If your asparagus bed was covered last fall with manure, remove the covering and fork the soil lightly. Do this as soon as the frost is out of the ground. An asparagus bed is not difficult to start. It may be grown from seed or young plants.

As soon as the soil can be worked, sow seeds of onions, leeks, peas, spinach, lettuce, parsnips and parsley. As parsnips and parsley seeds often take from four to five weeks to germinate, it is a good plan to sow a few seeds of lettuce with them to mark the rows. Sow early radish as soon as possible. Later in the month, sow beans, beets, carrots, salsify. It is strange that more salsify is not grown in our kitchen gardens. Cabbage grown from seed in the hotbed last month may be transplanted by the first of May.

WITH THE FRUITS

Remove the mulch from the strawberry bed. Currants and gooseberry bushes may be planted as soon as ground is fit.

Finish pruning the small fruit bushes and trees. Remove any dried plums and peaches that may still be hanging on the trees. Spray all fruit trees and bushes with Bordeaux mixture and Paris green.

THE FLOWER GARDEN

If you have not yet made a hotbed, do it now. Petunias, phlox, asters and other annuals may be started in it. If you have not the facilities for making a hotbed, these seeds may be started in shallow boxes in a sunny window of the house. Sow small seeds very shallow, merely pressing the finest of them into the soil with a piece of board or glass. Large seeds may be planted more deeply. A general rule is to plant these seeds three or four times the diameter of the seed. Annuals that are started inside should be transplanted when the second pair of seed leaves are in course of development.

As soon as the soil is dry enough outdoors, sow seeds of mignonette, wallflowers, snapdragon, sweet peas and so forth. Do not sow nasturtium seeds until next month.

In boxes of sand in the hotbed or house, strike cuttings of coleus, ageratum, geranium and lobelia. As soon as rooted, put them in small pots, water them and shade for a few days until they start growth again.

Divide the roots of cannas and dahlias. Plant or transplant perennials such as

pæonies, dielytras and German iris. Uncover the bulb beds about the middle of the month. Prune hardy roses. Plants that are injured by winter frosts should be headed back.

When all frost is out of the ground and the weather is fairly dry, the lawn should be rolled. Give it an application of some complete chemical fertilizer. Trim the grass edges evenly. Rake and clean up the garden, lawn, walks and drives generally.

French Market Gardens and Gardeners

John S. Pearce, Superintendent of Parks, London, Ontario

AMONG the exhibits by the French market gardeners at the Anglo-French exhibition recently held in London, England, the display of vegetables, especially salad vegetables, attracted a great deal of attention. These market gardens are situated in the vicinity of Paris, and the methods of culture and arrangement are far in advance and ahead of any other country. The vegetables are grown there so extensively and with such perfection that not only is the city better supplied than any other, but also very large quantities are shipped to England, Austria, and as far as St. Petersburg in Russia.

It is claimed that the metropolitan French gardeners have so developed their methods that families live comfortably on the out-put of plantings as small as one and two acres. To such an extent is this work carried on that there are 1200 of these metropolitan truck gardens within a radius of six miles from the fortifications of Paris. Very few of these gardens are greater in area than two acres, and the average sales from each are not far from $1600 every year.

According to the last census in the United States, the average returns from an acre of vegetables in similar gardens is $42, and the average value of vegetable crops in Queen's county, Long Island, one of the best garden districts in New York, is only $140 an acre, not one-tenth of the results obtained by the French gardens. We have no records for this country.

The secret of this success is largely due to the French methods of soil treatment. One important feature of this treatment consists in continually working the top soil and mixing it with composted manures. Close planting, judicious rotation and faithful hand labor are largely instrumental in insuring this success.

Some idea of the value of this land may be gathered when we say, that suitable land, close to or near Paris—a two-acre truck garden with house—is valued at $10,000 to $12,000, with a rental value of at least $500. Another feature due to the success of these gardens is irrigation plants.

It is true that labor in France is much cheaper than with us. Workmen receive about sixty cents a day with board. Without board, the wages range from $1 to $1.20 a day. It is stated that the average income of these intensive workers, after deducting living and garden expenses and interest on investment, averages $500. A close crop rotation is maintained throughout the entire year, but the actual profits are gained largely in winter and the early spring.

The most important and profitable vegetable grown is lettuce, of which it is estimated that 100,000,000 of heads are yearly raised about Paris, the surplus of which is shipped away, after being carefully wrapped in paper and crated. Besides lettuce a great variety of salads and greens, as well as carrots, radishes and cauliflower are constantly grown.

This would give our readers some idea of the intensive methods carried on by French market gardeners. It would be well if the market gardeners in this country paid more attention to culture, good seeds, good management and thorough care in the handling and shipping and selling of their products. The profits of market gardening, as in all other industries, consists in what you can produce over and above cost.

Tomatoes Grown at Victoria, British Columbia—Six Specimens Weighed Five Pounds
Photograph kindly furnished by Mr. H. Buckle, Victoria.

Starting a Cannery

I propose installing a small cannery on my ranch. Is the Modern Canner of St. Jacobs, Ont. of any repute? I would ask also if this kind of a venture is known to be a paying one.—W. A. S., Winnipeg.

We used the Modern Canner last year with very good success canning tomatoes, beets, cauliflower, apples, pears and any little odds and ends. For any canning which does not require a heat higher than 212 degrees F., I found this very useful and prefer it to any other one that I have seen so far. As to the venture being a paying one, it depends upon the business management of the operator. We found that it paid us very well last year. For one who wishes to can for home use or a local trade, I have no hesitancy in recommending the Modern Canner.—H. S. Peart, Director, Horticultural Experiment Station, Jordan Harbor, Ont.

A question was received from "Subscriber," Orillia, regarding greenhouse heating. Kindly send name, and a reply will be sent by mail.

Read our Special Seed Offer.

Economizing Space in the Kitchen Garden

E. G. Cooper, Oakville, Ontario

GENERALLY speaking, the kitchen garden is a small area of land that the owner is desirous of filling as full as possible with vegetables which, when grown, will be close at hand. In the first place, make a path through the centre of the garden leading from the kitchen and also paths leading from the main one in opposite directions. Along the borders of these paths can be planted small fruits, such as black, red and white currants, gooseberries and rhubarb, at a distance of four feet apart.

At the farther end of either half of the plot a piece of ground can be kept for an asparagus bed. Next to this bed, sow the different kinds of early vegetables, digging the ground with a spade or a digging fork. With the latter tool, the weeds will all be thrown out and not cut, as with the spade. Do not dig all the plot before sowing as by this method you injure the soil by tramping on it when sowing. Early vegetables, such as early lettuce, radishes, spring carrots, beets, early peas and onions (both Shallot and Dutch, the former for green use and the latter for boiling purposes) can be sown in double rows, ten inches apart, with two feet between each double row. Parsley, cress, endives and herbs, such as savory, sage, thyme and marjoram, can be sown between the bushes.

In the centre of the space between each double row, can be planted, in rows one foot apart, early kinds of potatoes that have been sprouted in the house. These can all be dug during the month of July. As soon as dug, fertilize and plant the second time to Winningstadt and Savoy cabbages. A few red cabbages also can be put in. Early cauliflowers can be placed in one or two spaces.

As soon as the early vegetables have been used, dig very deeply (one foot, if possible) the space which has been occupied and thoroughly enrich it with rotted manure. Plant in double rows through the centre, three kinds of celery, White Plume, Paris Golden Yellow and Giant Pascal. The two former kinds can be planted on the level; the latter in a shallow trench, using boards or soil for bleaching purposes. The plants in each row should alternate with those in the next ones. Plant six inches apart in the row. Each space can be filled with this vegetable. Start the plants in a cold frame or hotbed and as soon as large enough, transplant to a space or two between the bushes, where they will grow stocky. About the second week in July, they will be ready for the main rows.

This plan ensures four crops of vegetables that can be taken off the same piece of ground. After everything has been harvested in fall, manure heavily and dig the soil coarsely so that the frost in winter may pulverize it. If there are any clay spots in the garden, apply to them some sifted coal ashes.

On the other side of the main path can be sown double rows of beans, using two kinds, a yellow pod or a wax bean and a green pod variety. About the end of April or the first of May some more lettuce, radish, spinach, late beets, carrots, parsnips, later varieties of peas, black seed onions and pickling onions can be sown. There should be two and one-half feet between each double row instead of two feet as on the other side, which can be planted to early corn (reserving two or three spaces) in rows through the centre, three or four kernels in each hill, two feet apart in the row. Half way between each of these hills can be sown vegetable marrow in one row, Hubbard squash, both green and yellow, next, summer squash, next, all at one end of this half of the plot. At the other end, the spaces can be planted in the same way to citrons, water melons and muskmelons. These plants can be raised in a hotbed. Sow the seed in strawberry boxes, three or four in each. These boxes serve the purpose splendidly as, when planted in the ground, the thin wood will decay and allow the roots to expand and grow. The spaces that have been reserved as previously mentioned can be sown to early cucumbers for the table and pickling cucumbers for winter use.

When sowing the second crop of early vegetables on the last half of the plot reserve a space one foot wide in the double rows every three feet. In every space, plant one tomato plant, say about the first of June. These can be raised in a hotbed like the others. They should be transplanted six inches apart into cold frames. Keep them cultivated and in readiness for planting. Strawberry boxes can also be used for these. Have three kinds of tomatoes,—pink, early red and late red. On the late ones there will be enough left green for use as green pickles.

If there is a shed or stable near the garden, pumpkins can be sown close to it and trained up the side and over the roof. If there is a fence, scarlet runner beans can be sown and trained on them. A picket fence is preferable for this purpose.

The system mentioned will give a large quantity of vegetables on a small piece of ground. The amount of manure to be used depends upon the kind of soil. If the surface soil is sandy and resting upon a sandy sub-soil, apply manure at the rate of sixty tons to the acre. If the surface is a black loam, with a clay subsoil, apply forty tons to the acre. If it is clay, on a clay sub-soil, use coarse manure at the rate of seventy-five tons to the acre. For the latter type of soil, a little lime or ashes also would be beneficial. Plow or dig the soil in the fall and place the manure in each furrow. Throw the soil up loosely so that the frost can pulverize it. On the last named soil mentioned, one dressing of manure will last for two seasons. Where poultry is kept, the droppings should be saved. Mix it with sandy soil in equal parts and use as a fertilizer for currant and gooseberry bushes.

Asparagus Beetles

Tennyson D. Jarvis, Ontario Agricultural College

There are two beetles that feed upon the asparagus plant, both immigrants from Europe. One is known as the common asparagus beetle, the other as the twelve-spotted beetle. They both feed upon this plant alone, the former being found in greater numbers.

The eggs are dark colored, somewhat spindle-shaped and may be readily observed by one end along the shoots. The larvæ are of a dirty slate color and exude a large drop of blackish fluid from the mouth on being touched. They mature in about two weeks, when they go down into the ground, spin parchment-like cocoons, in which they change, and come up as perfect beetles in another fortnight or three weeks.

The common asparagus beetle is about a quarter of an inch long, blue-black or greenish; the body behind the head being red with two black spots. The wing covers are yellow with a dark line down the centre of the back. Shortly after emerging the beetles lay their eggs and the insect, in all stages, may be found from about the middle of June till the end of September. The twelve-spotted asparagus beetle, which differs from the other in being red, with twelve spots on the wing covers, is not so common.

REMEDIES

1. Ducks and chickens are very fond of them. 2. During the cutting season, leave scattered shoots to grow as traps. Spray with insecticides or cut down and burn. 3. After the cutting season, or on young plants, dust fresh air-slacked lime, or arsenites, or both, on the plants while the dew is on. Repeat whenever larvæ reappear.

It is exceedingly important to have vegetables for sale at the earliest possible date in order to catch the highest prices.

QUESTION AND ANSWER DEPARTMENT

Gum on Peach Trees

Kindly give some information respecting the cause of gum on peach trees and the remedies.—A. W., Lincoln Co., Ont.

There are two great causes of gum exudations on peach trees: First, the tiny black beetle known as the shot-hole borer or pin borer (*Scolytus rugulosus*); second, the fungous disease known as brown rot (*Sclerotinia fructigena*). Other fungi may cause a certain amount of the gum; for instance, the disease known as "die back" (*Valasa leucostoma*) causes a certain amount of gumming, but brown rot is almost without doubt the chief fungus in producing this effect.

If the gum is produced by the shot-hole borer, it will be possible, on removing the gum to see the hole made by the insect. If the bark is cut with a knife it will help in making clear whether an insect has been at work. If, however, on removing the gum and using, if necessary, the knife, there is no sign of the work of an insect, the gum may in most cases be attributed to the brown rot. The brown rot spores may enter through any kind of wound, or through frost or winter cracks. It can also in long continued moist weather enter directly through a lenticel, as I have proved by actual experiment.

The very wet spring of last year was largely responsible for the unusual virulence of the brown rot fungus on peach trees. It is seldom that there is one-twentieth part of the gum masses produced by this disease that were to be seen last year. The chief cause of infection is clearly the numerous diseased and mummy peaches and plums that are left on the trees over winter and scatter spores in the spring for a considerable time. The following treatment is recommended:

1. Carefully prune the trees to allow plenty of air, circulation and light

2. Remove and, if possible, burn all old mummy peaches and plums in the orchard. If they cannot be burned, see that they are plowed down as they will otherwise produce spores.

3. Spray with full strength home-made lime-sulphur just before buds open; or good strong Bordeaux mixture (5-5-40) may be used instead at this date.

4. Spray again as soon as blossoms have fallen, using home-made lime-sulphur and repeating the spraying every ten or twelve days as long as it is safe to do so without danger of spoiling the fruit through the mixture remaining on the pubescence. The home-made lime-sulphur should be of the strength of five pounds of fresh stone lime, five pounds of sulphur and forty gallons of water. To make it, put the five pounds of lime into a barrel, make a thick paste of the sulphur with a little water, pour it over the lime and add just as much water as is necessary for rapid and thorough slaking of the lime. As soon as boiling ceases, dilute to forty gallons with cold water and apply at once.

5. Thinning the fruit helps to prevent rot. Moreover, it stands to reason that the sooner one can pick and burn rotten fruit each year, the less danger there will be of infection.—L. Caesar, Ontario Agricultural College.

Colors of Pyrethrums

What colors of pyrethrums are obtainable in Ontario?—A. M. T., Hastings Co., Ont.

Almost all of our Ontario seed firms advertise seed of *Pyrethrum hybridum*, the tall flowering variety. I have purchased seed at different times from different seedsmen in Ontario and have secured quite a variety of colors in these flowers. To be quite sure of the colors, however, it would be better to purchase plants of the colors required, as the plants from seed are sometimes unreliable as to quality and color. Most of our seedsmen quote plants of pyrethrum in their catalogues. The colors are found in various shades from pure white to pale pink and crimson chiefly. The following seed firms among others advertise *Pyrethrum hybridum* seeds: John A. Bruce & Co., Hamilton; W. Rennie & Co., J. A. Simmers and Steele, Briggs & Co., Toronto; Dupuy and Ferguson, and W. Ewing & Co., Montreal.—Wm. Hunt, Ontario Agricultural College.

Fuchsias and Begonias

How should fuchsias be treated after they have been in the cellar all winter? What should be done with begonias? Should they be repotted?—Mrs. H. B. Ottawa, Ont.

Fuchsias will be benefitted by being in a cool cellar for part of the winter, being a deciduous plant, but not all winter. They should not be allowed to get dust dry, nor wet, but between the two, to get the best results. If the plants are put into the cellar in the fall, they will be wanting to start growth about Christmas time. When growth has begun, they should be trimmed in the way desired by the owner. The half of the soil should be removed from the roots, the roots partly trimmed back, when the plants may be repotted into smaller pots than the ones from which they were taken and removed to larger pots as soon as the present ones are full of roots, each time two sizes of a pot larger than the one before. The soil to use should be decayed fibrous turf or sods, one-half; the other half may be composed of leaf mould, sharp lake sand, a sprinkle of bone meal and a sprinkle of wood ashes. Mix together thoroughly. Most plants will grow in such a soil.

I cannot give a correct answer to the begonia question as there is no mention made as to what kind or variety or type of begonia is meant. If tuberous, they will now be making a move after resting all winter in a dry warm place in a box of dry sand. They must be potted in a soil similar to that recommended for fuchsias. The flowering and rex begonias may be repotted the same way as directed for fuchsias, the only difference being to add a little more leaf mould to the compost. I would advise in the case of the flowering and rex begonias, that they be not disturbed until the warm weather comes, except by parties owning greenhouses, and then they should be plunged in heat at the roots to give them a good start.—Roderick Cameron, Toronto.

Moving Perennials

Would it be all right to lift perennials with the clay around them frozen or half frozen, pack them in boxes and ship them to other places? As I am moving, I would like to take my best perennials with me.—R. P. Dunnville, Ont.

All perennials are very easily moved while in a dormant or resting state. It is not necessary to leave the soil on the roots. Shake the soil from them and make the clumps as light as possible, then wrap them up in damp moss, straw or other such material. Over all wrap a piece of old sacking or cloth of any kind to hold the material about the roots. They may then be shipped any place.—Roderick Cameron, Toronto.

Formalin for Potato Scab

What are the proper proportions of formaldehyde and water for curing scab on potatoes?—J. W., St. John, N. B.

Formalin is the commercial article that is used as a fungicide. It is a forty per cent. solution of formaldehyde. The following are the proportions that are used for potato scab: (a) Formalin, one-half pint; water, twenty-one gallons; immerse for twenty minutes; or (b) Formalin, one half pint; water five gallons; sprinkle and stir until thoroughly moistened.

In landscape architecture, the lawn is next in importance to the house.

The Canadian Horticulturist

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OFFICIAL ORGAN OF BRITISH COLUMBIA, ONTARIO QUEBEC, NEW BRUNSWICK AND PRINCE EDWARD ISLAND FRUIT GROWERS' ASSOCIATIONS

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CIRCULATION STATEMENT.

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January, 1908	7,650	January, 1909	9,456
February, 1908	7,824	February, 1909	9,310
March, 1908	8,056	March, 1909	9,405
April, 1908	8,250		
May, 1908	8,573		
June, 1908	8,840		
July, 1908	9,015		
August, 1908	9,070		
September, 1908	9,121		
October, 1908	9,215		
November, 1908	9,323		
December, 1908	9,400		
Total for the year	104,337		

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Average each issue in 1908, 8,695
(Increased circulation in one year 2,068)

Sworn detailed statements will be mailed upon application.

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EDITORIAL

MORE INSPECTORS NEEDED

There is need for more Dominion fruit inspectors in the western provinces and British Columbia. This is pointed out in articles that appear on pages 91 and 92 of this issue. The need is felt not only for the inspection of fruit designed for export, but particularly for the examination of fruit that is imported from the United States.

Merchants are instructed by the Dominion Department of Agriculture to mark all imported fruit with their own name and address and with its grade, and they must become responsible for it. While there have been comparatively few violations of these regulations, they can be prevented only by an adequate force of inspectors. At present, there are only two inspectors in the western and Pacific provinces. These men have done excellent work, but they cannot cover all this territory nor do all the work required. The force should be doubled, at least. It is hoped that the Dominion Minister of Agriculture will make additional appointments before the opening of the next fruit season.

BRANDING ONTARIO APPLES

Ontario packers persist in branding their apples "Canadian," whereas packers in Nova Scotia and British Columbia have been branding their apples "Nova Scotia" and "British Columbia" respectively. The result is that if one picks up a price list in England of apples offered for sale by English commission firms he finds the word "Ontario" missing from most of them. They are listed there as "Canadian," "Nova Scotia" or British Columbia."

It would seem that Ontario packers have been too generous in this matter and their patriotism has exceeded that of the sister provinces. The apple growers of Ontario should think this matter over and discontinue the present system of marking and brand all their apples "Ontario, Canada" instead of simply "Canada."

ONTARIO vs. BRITISH COLUMBIA

The friendly rivalry that exists between the fruit growers of Ontario and British Columbia should be encouraged rather than disparaged. It stimulates effort and discourages carelessness. Its influence is more apparent, however, at the coast than in the province by the lakes. Our representative, who visited British Columbia, some time ago, noted that in that province, and particularly in the Okanagan Valley, there is a feeling of contempt for eastern fruit. There is a general impression that Ontario is a land of old infested orchards and cull fruit. The idea is born of the fact that Ontario has been slower than British Columbia in adopting the most advanced methods of grading and packing fruits and even of orchard management. Ontario has not been keeping herself before the world. The states of California, Washington and Oregon have and the people of British Columbia take them as their ideals.

There is some cause for this attitude of British Columbia. The growers of that province are hustlers. They have been ready to take advice from California and other Pacific States that have raised the standard of fruit growing to perfection. British Columbia has learned in short time the art of fruit packing and, in this respect, can teach a few things to Ontario. Furthermore, British Columbia has the advantage of new lands and new orchards which means for a while comparative freedom from insects and disease. These will come later; some are coming now.

Ontario can grow just as good fruit as British Columbia. She excels in firmness and flavor. No British Columbian will credit this, (unless he was raised in Ontario), but impartial judges know it. The Pacific province excels in size and usually in color and she leads in methods of packing and, greatest of all from the business viewpoint, in advertizing her country, its resources and products. These differences excite rivalry which is a good thing if not carried to the extreme of bitterness. There is no need that this shall occur. Both provinces are superior in one or more particulars. It is up to the growers and government of Ontario to make her particular points of excellence more widely known as British Columbia does hers. It pays to advertize.

A CHANGE NOT NEEDED

To change the name of the Ontario Vegetable Growers' Association to the "Ontario Vegetable and Small Fruit Growers' Association," as has been proposed, would be unwise. Because some of its members grow fruits as well as vegetables is not sufficient reason for adopting such a cumbersome appellation. Furthermore, the proposed name overlaps and enters the field of other organizations. The vegetable growers' and the fruit growers' associations should be kept distinct in purpose and in name.

Many of the members of the Ontario Fruit Growers' Association grow vegetables but they would not feel justified in changing the name of their organization to the "Ontario Fruit and Vegetable Growers' Association." To avoid confusion in names and in interests, it would be well to leave the name of the Ontario Vegetable Growers' Association intact.

Naming New Stsawberries

Editor, THE CANADIAN HORTICULTURIST:—I noted the editorial on "Naming According to Sex" in the January issue of THE CANADIAN HORTICULTURIST. If the plan which you suggest were universally followed it would be something of a guide to prospective planters with regard to the character of the blossoms of the varieties from which they were making selections for planting, but for several years, there would undoubtedly remain the confusion of sex names which now exists, and this would continue until our present varieties became obsolete. Theoretically the plan is good but practically I think it would be very difficult to secure its uniform operation.—S. A. Beach, Horticulturist, Iowa State College, Ames, Iowa.

The Home Market For Apples

Alex. McNeill, Chief, Fruit Division, Ottawa

It is a recognized principle in political economy that the best paying market is the home market, up to the limit of its capacity. Unfortunately, this market, can be overdone in some particulars. In order to determine whether the home market was properly supplied with apples this winter I made inquiries from the merchants in the principal smaller towns and cities of Ontario. In almost every case it appeared that there was a shortage of good fruit and an excellent demand for all the winter varieties. Prices ranged high, from $7 a barrel in Montreal for choice Spys to $4.50 and $5 in the smaller towns.

There is not the slightest doubt but what thousands of barrels would have been consumed in the neighborhood of where the apples were grown if they had been properly

stored and offered for sale. Windsor, St. Thomas, Chatham, London and Brantford were all practically bare of first-class winter apples, and had only the lower grades to offer, and these at high prices.

On the whole the prices have been good for winter apples in the Old Country markets, but at no time have they been better than in the home markets; at present, the home market prices are higher than the British market prices. Nevertheless, there is a constant stream going to the Old Country, while our own people are eating only the inferior grades or no apples at all. This is not an extraordinary year in that respect. Four years out of five at least there is a shortage in the home markets, and the growers cannot do better than to organize in such a way that the home markets at least will be supplied.

Of course, there is a danger of overdoing the local markets. The remedy for that is co-operation and publicity. If those who propose to store apples will let the fact be known early in the season, and not attempt to store by stealth, there is little danger of storing too many.

The storage, too, ought to be done as much as possible at local points to save freight; but, far better pay freight to and from a cold storge warehouse than attempt to hold apples where the temperature cannot be kept at less than 50 degrees. The ordinary farmer's cellar may do for storing a few barrels, but is altogether too warm a place to risk any large quantity in. I note this point, because, though I recommend the storing of apples sufficient for home use, I would also add the caution that in order to make the enterprise an assured success, there must be proper storehouse facilities.

Your Garden for 1909

The special offer made by THE CANADIAN HORTICULTURIST, that appears in another part of this issue tells how to secure a collection of 14 different varieties of flower and vegetable seeds, a collection of five dahlias, and a three year old Crimson Rambler rose bush, free of cost. It only means a few minutes' work among your friends. Turn to this offer and read it carefully. It will interest you. Then set out to secure one or all of the above mentioned premiums. It will not take you long. Get three of your friends to subscribe for THE CANADIAN HORTICULTURIST and all three premiums will be sent to you. If you are unable to secure three subscriptions, secure two or one, and tell us which premium you wish sent you. Tell your friends how THE CANADIAN HORTICULTURIST has helped you in planting and caring for your flower garden in the past. You may depend on it that it will be better than ever this year.

Help boom THE CANADIAN HORTICULTURIST. Show it to your friends and secure their subscriptions. Tell them that it is the only Canadian paper that deals with amateur flower growing and garden making. Tell them that our Question and Answer Department is open to all of our subscribers. Tell them that each month an article appears giving suggestions for amateur flower growers and gardeners for that particular month, besides numbers of other articles dealing with timely and interesting subjects. Send us the names of some of your friends who are interested in flower growing and gardening, but who do not take THE CANADIAN HORTICULTURIST. We will send them free sample copies. Perhaps some of them have never seen the paper. Give them an opportunity to see this issue.

THE CANADIAN HORTICULTURIST is improving wonderfully.—J. A. McBride, Montreal.

The Fertilizers Act

Editor, THE CANADIAN HORTICULTURIST:—Am I not correct in regarding the horticulturists as the chief consumers of commercial fertilizers in this country? How many of them, I wonder, are familiar with the Dominion law providing for Government inspection of fertilizers offered for sale? How many of them have compared the present law, dating from 1890, with the bill introduced into the Senate by Hon. R. W. Scott last July and likely to be brought into Parliament again at the present session? Such a comparison I have attempted in a letter recently submitted to several of our agricultural papers. In the present communication, I shall confine my attention to a few of the most important points.

The chief faults of the Act of 1890 are its failure to specify potash as one of the valuable fertilizing ingredients and its requirement that the Government shall analyze not only the samples collected on the market by the Inland Revenue Inspectors but also a standard sample of each fertilizer, to be sent in by the manufacturer before the end of January. Manufacturers not having their year's stock made up at that time and probably, in many instances, not having even received raw materials cannot comply with this requirement. What then do they do? Some of them make up samples, specially, in order to meet the letter of the law. These samples are by no means representative of what is later put upon the market. Other manufacturers beg for an extension of time, so that they may comply with the spirit of the law. They get the extension of time as much as two months sometimes. The latter class of manufacturers have delayed the publication of the results of the analyses until they are of no service to the consumer buying fertilizers for spring use. The former class have rendered the results unreliable and misleading. If the bulletin came out at the time the law presumably contemplated, it would be worse than worthless. As matters stand, it is worthless merely. These analyses are so much waste labor, the cost of which falls partly on the general public, partly on the manufacturer directly, but eventually upon the consumer.

The bill introduced last session does away with this farcical analysis and merely requires the manufacturer to live up to his guarantee—which, in the opinion of the chief analyst, is all that the present law can actually do. It also includes potash among the fertilizing ingredients. But it in turn has several weaknesses.

In the earlier communication referred to, I pointed out those that occurred to my mind. Having reason to believe that the bill will be materially modified before introduction, I shall not trespass upon your space with a repetition of my criticisms. But I should like to suggest to your readers, and especially to the associations that you represent, that they be on the lookout for the new bill, secure copies of it and take action to

Ribston Apples on Trees as They Appeared Last Season in a Nova Scotia Orchard

The photograph was sent to the Dominion Offices of the Potash Syndicate, Toronto, by Mr. W. H. Starr, of "Maplehurst," Chipman's Corner, N. S., with the following explanation: "The photo was procured in our eight-acre orchard of twenty years planting, which last spring received an application of 200 pounds of muriate of potash and 300 pounds of acid phosphate per acre, nitrogen being supplied by clover. One barrel each of Gravensteins and Kings from the same orchard received first and second prizes respectively at the Nova Scotia Horticultural Exhibition held at Kentville last October. This speaks well for potash."

support or oppose it, according as it recognizes or ignores their interests and those of the general public. Bear in mind that a good bill may be ruined by amendments. The manufacturers will probably present their views effectively and though the interests of honest manufacturers do not necessarily conflict with those of the consumers, yet it is by no means impossible that those who do not guard their own may suffer for their negligence.—J. F. Snell, Assistant Professor of Chemistry, Macdonald College.

One of Our Old Friends

The subject of the accompanying portrait, Mr. Thomas Beall. of Lindsay, Ont., became a member of the Fruit Growers' Association of Ontario in 1869, and was elected a director in 1870. The secretary, Mr. D. W. Beadle, proposed in 1877, the publication of a magazine or journal in the interests of the association. This was heartily endorsed by all the directors, including Mr. Beall, and the first number of THE CANADIAN HORTICULTURIST was published in January, 1878. The magazine was published under the direction of Mr. Beadle until 1887, when Mr. Linus Woolverton was apointed secretary of the association and editor of THE CANADIAN HORTICULTURIST.

Mr. Thos. Beall

Work in connction with the association and with the publication of the magazine went along smoothly for a while. but the membership gradually fell off. Upon investigation, it was found that lack of money was the trouble. As a means of increasing circulation, Mr. Beall suggested, about 1890 that local horticultural societies be organized throughout the province. The idea was strongly opposed by some of the directors. In 1893, however, Mr. Beall succeeded in getting a resolution passed at the annual meeting, requesting each director to organize one or more of these societies in his district. At the following annual meeting, it was reported that two societies had been organized and this was done by Mr. Beall. In spite of early opposition, the number of societies increased as the years went by and a large measure of the success was due to the enthusiasm and energy of the aforementioned gentleman.

Mr. Beall has always been a great friend of horticulture. As indicated in the foregoing paragraphs, he has been instrumental in raising our organized forces of horticulture to their present standing. Although 80 years old, he still takes an active interest in all things that have to do with the growing of plants for pleasure. It is the wish of the horticulturists of Canada, as well as of THE CANADIAN HORTICULTURIST, that Mr. Beall may be spared many years yet to enjoy his chosen hobby, horticulture.

I am more than pleased with the improvements in THE CANADIAN HORTICULTURIST, and could not well get along without it.—B. Dixon, Elgin Co., Ont.

FOUNTAIN PEN FREE.—For securing two new subscriptions to THE CANADIAN HORTICULTURIST at sixty cents each, we wil send you free of cost, a fourteen-kt. Gold Fountain Pen, guaranteed to give satisfaction. Secure one of these pens this spring.

Herbaceous Perennials

Reviewed by John Cavers, Oakville, Ont.

There was issued from the Department of Agriculture at Ottawa, last month, a bulletin which is deserving of more than a passing notico. It is modestly called "A List of Herbaceous Perennials," and its author is Mr. W. T. Macoun, horticulturist and curator of the arbhoretum and botanic garden of the Central Experimental Farm at Ottawa. While the list is confined to the herbaceous perennials, to the number of 2116, and to a few botanical species growing in the botanic garden under Mr. Macoun's charge, it may well be considered as a handbook of the species and varieties listed, because of the wealth of information given.

The introduction, the page on "The Planting and Care of Handy Herbaceous Perennials," and the introductory notes on the chrysanthemum, the delphinium, the dianthus, the iris, the pæony, the phlox, and others, are features that are valuable and thoroughly practical. The list shows that the collections of iris and perennial phlox are large and comprehensive.

The collection of pæonies is not given in detail, but three "best lists of twelve" are given, one giving the judgment of Mr. Macoun; another, that of Mr. R. W. Whyte, of Ottawa; and the third, that of Dr. A. P. Saunders, of Hamilton College, Clinton, N.Y. The variations in these three lists may well be taken as an evidence of the wealth of coloring and form in the bloom of this favorite plant.

It Brings Business

Editor, THE CANADIAN HORTICULTURIST:—Our experience with THE CANADIAN HORTICULTURIST as an advertising medium has been entirely satisfactory. Last year it proved to be the second best of all the papers we used in Canada, from the standpoint of the number of enquiries received, and from the standpoint of cost per enquiry it was the lowest and stood second from the standpoint of sales from enquiry. Taking it all around, we consider it one of the best, if not the best medium in Canada, for our line.—Spramotor Co., W. H. Heard, Manager, London, Ont.

The bulletin bears evidence of the greatest care in the collection of data, in the proof-reading and in the mechanical work on it. The illustrations are in excellent form and they make an honest appeal to the eye. The correct botanical names of the species and varieties, if any, the names of the discoverers, the habitat, the time planted at Ottawa, the hardiness, the height, time of flowering, and a brief description of the plant or flower are given.

The names are so generally accurate that a somewhat careful examination has revealed to the writer only a few instances in which the rule would appear to require "i i" as an affix instead of "i"; as for instance, *Aquilegia Stuarti*, on page 15, should be *Stuartii*. It is respectfully suggested that Canadian catalogue makers might well accept this bulletin as our authority on the spelling of names in herbaceous perennials.

Many of the varieties of these plants bear Latin, French, or Latinized names, and in some cases the name suffers in the spelling. "Jeanne d'Arc" is a popular name for French productions in the plant kingdom. The following variations on the name are found in catalogues, viz., Jane, Jean and Jeannie. Such instances of carelessness are not creditable to the men who make the mistakes and, with thinking people, they reflect on the character of the business methods of these men. Catalogue makers are about equally divided in listing dicentra and dielytra as botanical names for "bleeding heart"; and pyrethrum for early flowering chrysanthemum. Mr. Macoun follows the nomenclature adopted by the Royal Botanic Gardens, Kew, London, and gives dicentra and *Chrysanthemum coccineum*, dielytra and *Pyrethrum roscum* as being synonymus for these names respectively.

At the end of the bulletin are given lists of the best 12, the best 50, and the best 100, hardy herbaceous perennials. Mr. Macoun has earned tho congratulations and is entitled to the best thanks of the horticulturists of this country for this valuable contribution to our native horticultural literature.

Re Queen Victoria Park

Editor, THE CANADIAN HORTICULTURIST:—Your correspondent, "A Citizen" (page 63, March issue) does not appear to grasp the situation. The subject being discussed is that Queen Victoria Park, being a provincial park, (one might almost say a national or evon a world park), appointments that are made to carry on the horticultural work of the park should be made with the view of obtaining the very best horticultural results. It goes without saying that if the "butcher, the baker, the candle-stick maker" the politician or even the farmer is put into a position requiring the best horticultural knowledge, the results, from a horticultural point of view will not be satisfactory. It appears, therefore, that the stand taken by THE CANADIAN HORTICULTURIST in the matter does it every credit and is in all respects the right stand. No reflection has been cast on the personal character or standing of any one concerned; they may be and doubtless are very good fellows *in their line*.

It does not appear that what Mr. Wilson or Mr. Cameron have done in the past has anything to do with the question now. What is wanted *now* is that thoroughly experienced horticulturists should be appointed to positions on the staff requiring that knowledge regardless of politics or anything else outside that knowledge (character, of course, excepted.) "A Citizen," when he saw what could be done with the park by a thoroughly experienced horticulturist, would probably be the first to acknowledge that experience and knowledge are the first requisites and do count in improving and keeping on improving a park with the possibilities of Queen Victoria Park. There are men in Canada fully capable of doing the work, even better than it has been done. Why not get the best for such work in such a place ?—*Veritas Vincit*.

Toronto Horticultural Society

A meeting of the Toronto Horticultural Society was held on March 2nd, with a good attendance of members. The president, Mr. H. R. Frankland, was in the chair. The secretary reported 57 new members since the last meeting. A committee was appointed to draw up a prize list for exhibits by members of the society at the Canadian National Exhibtioin next September, the idea having been adopted by the meeting.

A paper by Mr. A. W. Annandale on "The Best 24 Annuals for the Toronto District," was read in his absence by Mr. Roderick Cameron. Extracts from this paper will be published in next issue, together with some comments by Mr. Cameron. Copies of this paper were printed in advance and mailed to members so that they came prepared to discuss the same.

Vegetable Growers Meet

The meeting of the Toronto branch of the Ontario Vegetable Growers' Association, held in Toronto, on March 6, was largely attended, and the addresses delivered by Prof. W. P. Gamble, of the O. A. C., and Mr. Dagar, Food Inspector of the Inland Revenue Department, were listened to with with much interest.

In his opening address, the president, Mr. Thos. Delworth, referred briefly to the condition of affairs at the St. Lawrence market, Toronto. He stated that the market gardeners had been refused permission to sell from the wagons, in the north part of the market. He had had communication with Property Commissioner Harris, of Toronto, and had been informed that the city would make room for the growers, in the southern part of the market. The speaker stated that there was no room down there and that on Saturday mornings the men had to wait till 12 or 1 o'clock before they could get into the market at all. It was the general opinion that the city did not want the growers there. The matter will be gone into still further.

Mr. B. Leslie Emslie, of the Dominion Agricultural Offices of the Potash Syndicate, stated that this firm would supply, free of cost, to all men who cared to make the experiments, potash for use on all crops, provided that the experimenters would give a full report to his firm.

Mr. N. Carter, of Earlscourt stated that last year the government passed legislation assessing all property in Earlscourt that was under 50 acres at so much per foot frontage. Previous to this, all land over two acres were assessed as farm lands and consequently the assessment was considerably less. On motion of Mr. Carter, seconded by A. W. Shuter, of Bracondale, it was resolved that the members of this association do all in their power to help the growers of Earlscourt to secure the old state of affairs.

Mr. Dagar then explained in a few words the working of the Pure Foods Act in regard to fertilizers. It was thought by the executive of the assoeiation that the method of taking samples of fertilizers is unworkable.. As it works now, it has to be done in the presence of the manufacturer or his agent and these people can refuse to witness the taking of the sample. It was recommended that the operation be done in the presence of two disinterested parties and that any punishment should rest with the government and not with the purchaser of the fertilizer.

In the exhibition of rhubarb, Thos. Delworth took first, J. W. Rush second and Mr. Hurrell, third. A hearty vote of thanks was tendered Professor Gamble and Mr. Dagar. A report of Professor Gamble's address will appear in next issue.

Spraying

W. Staley Spark, Toronto

If fruit growers wish to have healthy trees and clean fruit they must spray. It is an absolute neeessity, but it is of no use to spray indiscriminately, that is to say, just to put the spray on the trees at any time and imagine that you have eradicated or prevented all and every kind of disease which attacks fruit trees. The careful fruit grower examines his trees and knows well what he is going to spray for. He then takes care to spray at a time when he is most likely to kill the pest or disease which is attacking the trees.

It is a very common error (of small orchardists especially) to think that the materials used can be mixed by guess work. They should be measurod most carefully, following the instructions given by practical men of experience, or manufacturers of the article used.

Some fruit growers spray when the trees are in bloom. This is not a good practice. Some people will tell you that if there be a surplus of blosoms it was a good way of thinning them, but it often produces abortive fruit, and may possibly kill bees which do so much to fertilize the blossoms.

Others imagine that if you spray your trees once and the disease is not entirely eradicated, the formula recommended must be a failure. This is a great mistake. The most careful sprayer will often miss a small portion of the tree, and it may be the very place he has missed is infected with the insects or disease he is trying to kill. It may possibly be that one dose will be sufficient, but it seldom is so, and no man can make a mistake by spraying twice with the same mixture in one year.

With regard to Cooper's V1 Fluid which has been spoken so highly of for both San Jose scale and oyster-shell bark-louse, it has been proved beyond doubt to have a most beneficial effect as a tonic to the tree, a fungicide and scalecide, if used both in the fall after the leaves have fallen and again in the spring before the buds burst. It is the opinion of most practical men that orchards should be sprayed at least three times in the year, once in the fall, especially for fungus, once in the spring before the buds burst for scale, oyster-shell bark-louso and other diseases, and once in the summer when the tree is in leaf, in order to deal with insect life.

The greatest care should always be taken in mixing and measuring the spray mixture, in getting a fine mist-like spray and in covering every branch and twig as well as the trunk of the tree, and even a eireumference of three feet around the base of the tree.

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Home-Made Soluble Oils

"Home-made Soluble Oils for Use against the San Jose Scale," is the title of Bulletin 179, issued by the Virginia Agricultural Experiment Station. From tests made at this station, the following conclusions are drawn:

Home-made soluble oils are recommended for trial in place of the lime-sulphur wash, under certain conditions. Further tests must be made before we can recommend them unreservedly. For general orchard spraying the lime-sulphur is probably more satisfactory.

The various prepared or patented brands of soluble oils cost about three times as much as the home-made product containing the same per cent. of oil. Our tests indicate that the home-made oil is as effective as the prepared oil. The cost of the home-made oil is about the same as the cost of lime-sulphur.

The home-made soluble oil is more practicable for the practical orchardist than for the man who has only a few trees, unless one person will make the material for a neighborhood.

It is not quite as troublesome and disagreeable to make soluble oil at home as it is to make lime-sulphur.

Apply the soluble oil spray only in the dormant season. The trees should not be pruned before they are sprayed, as the oil may injure the cut surfaces, unless they are painted.

The home-made soluble oil spray is recommended for trial against the San Jose scale, and the maple scale. It is not recommended for use against the scurfy scale.

Short Course at Guelph

A. J. Logsdail, Ontario Agricultural College

The short course in fruit growing that was held at the Ontario Agricultural College early in February was a great success. In addition to the discussions referred to in the March issue of THE CANADIAN HORTICULTURIST, the following addresses and conferences were of great value and interest:

Mr. T. D. Jarvis gave a short illustrated lecture showing the difference between the two great classes of insects, namely those that feed by chewing or biting their food, and those that feed by sucking the juices of plants or trees. Mr. L. Caesar also of the entomological department then briefly discussed the best methods of dealing with many of the most injurious insects to fruit.

SPRAYING

There was a general conference on the preparation and application of spraying materials. Bordeaux mixture was made up in barrel lots and its physical properties determined. Lime-sulphur was next made up in the following ways: 15 lbs. of sulphur, 20 lbs. of lime and 15 gallons of water was steam boiled for one hour then made up to 40 gallons; 15 lbs. of sulphur, 15 lbs. of lime and 15 gallons of water was boiled for one hour and made up to 40 gallons; and lastly 15 lbs. of sulphur was made into a paste and then mixed with 20 lbs. of unslacked lime over which two gallons of hot water was poured, this was then allowed to self boil for 40 minutes. A chemical analysis was made of these three combinations and it was found that the 15-20 formula contained about 13 per cent. of calcium sulphide, the 15-15 formula contained about 12 per cent. and the self boiled under 2 per cent. From these figures it will be seen that the two steamed boiled sprays were considerably stronger than the self-boiled, but the self-boiled it has been shown is much less liable to injure foliage and serves splendidly as a summer spray.

Professor John Craig, of Cornell University, N. Y., gave a most interesting leeture on the methods of apple-growing in British Columbia, and the states of Washington and Oregon.

THE BEST VARIETIES

That best varieties for one section would not necessarily be the best for other districts, was pointed out in a discussion on this subject. Mr. J. E. Johnson, of Simcoe, named the following as his choice for Norfolk county: Baldwin, Spy, King, Snow, Greening and McIntosh. He deplored the old method of planting numerous varieties, a mixed lot of fruit being much harder to dispose of profitably than a few first class

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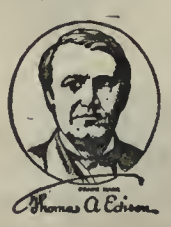

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varieties. Mr. Carey, of Northumberland, favored the Spy, Blenheim, Alexander, Wolf, River, Gravenstein, and Hubbardston, all which are hardy varieties, suitable to that section. He considered the Snow the best selling apple, but he would not recommend it because it required a more thorough method of culture than the majority of apple growers would give it, and second class Snows he considered valueless.

Mr. A. McNeill, Chief, Fruit Division, Ottawa, gave some valuable hints to men intending to plant apple orchards. Avoid planting any new variety; choose the varieties which do best in neighboring orchards.

THINNING FRUIT ON TREES

Mr. J. Gilbertson, of Simcoe, gave a short address on the subject of thinning apples. The reasons he gave for thinning apples are as follows: 1st, it will give a good uniform grade of fruit; 2nd, it prevents the trees from bearing an overload of fruit, only half of which will fully mature, and thus much nourishment is lost both to the tree and fruit; 3rd, it encourages the formation of fruit buds by avoiding exhaustion, thus obtaining regular crops each year; 4th, because the greater facility of harvesting fruit that has been thinned will pay entirely for the cost of thinning; 5th, because the fruit thus harvested will run about 85 to 90 per cent. first class. Mr. Gilbertson gave an instance of some Spy trees which he had thinned from which he picked 250 barrels, and of this number only 7 per cent. were seconds; that is an average of 93 per cent. firsts.

Mr. W. H. French, of Oshawa, supported these statements by some work he himself had carried on in this line. He found that it cost him about five cents a barrel to thin his fruit and only 20 cents to pick and pack a barrel of thinned fruit, whereas it had formerly cost him 30 to 35 cents a barrel just to pick and pack. Apart from this fact he now obtained a higher average grade of fruit throughout.

SHIPPING APPLES

Professor Reynolds, of the O. A. C., gave an interesting account of experiments that had been carried on, in the long distance shipment of tender fruits: experimental carloads of such fruits were originally sent from Grimsby and St. Catharines. The St. Catharines Cold Storage and Forwarding Co., have since then developed a large business with the northwestern markets. All the fruit is pre-cooled and placed in freshly iced refrigerator cars, and sent direct to its destination, where it arrives in excellent condition.

PACKING APPLES

A demonstration was given in the correct and incorrect methods of packing apples. Mr. McNeill advocated the box method of packing; but he contended that if boxes were used, grading would have to be done more carefully, and it was necessary to pack a box from bottom to top, not treat it as a barrel, and just "head" and "tail" it, letting the fruit in the middle "pack itself."

Mr. McNeill gave many illustrations of the fact that boxed apples shipped better, sold more readily, and procured better prices; but he said he did not advise old barrel packers to take to boxes, fo rit seemed beyond the capabilities of most men accustomed to the use of barrels to get into the way of handling boxes correctly.

CO-OPERATION

A conference was held on the subject of "Co-operation." The following well-known men were present: Messrs. J. E. Johnson, Simcoe; R. Thompson, St. Catharines; D. Johnson, Forest; A. W. Peart, Burlington; Elmer Lick, Oshawa; each briefly giving the

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history and development of their several associations.

The Assistant Provincial Secretary explained most clearly the advantages to fruit-growers availing themselves of the new Act dealing with Companies and Associations. He pointed out the fact that an association could be legally incorporated without the necessity of issuing shares, which often remained a drag on such an organization and hindered its future development. If money was required it could be obtained by issuing debentures which would enable the debts thus incurred to be paid off.

Wire Fencing— Owing to the rapid increase in the export business of The Page Wire Fence Company, of Walkerville, Ont., since the introduction of its "Empire" white fencing for railway, farm and ranch use, it has been thought best to have the foreign business handled by a company of a name similar to that of the fencing, and to this end The Empire Fence Export Company, Limited, has been formed. It is owned and controlled by the same people as the old company. The head office and factory will be at Walkerville, Ont.

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NOTES FROM THE PROVINCES

British Columbia

A conference of representatives of fruit growers' associations, of boards of trade of British Columbia and of prominent officials of the C.P.R., was held early in March in Victoria. Important problems were discussed and much good resulted.

A resolution asking the C.P.R. to reduce the minimum rate for carload rates from British Columbia to points east on mixed cars of apples, pears, fresh fruits and vegetables from 30,000 to 24,000 pounds for large cars and to 20,000 pounds for small cars, brought information from J. H. Lanigan, of the C.P.R., to the effect that the request in respect to large cars would be granted, but he could not consent to a reduced minimum on the smaller cars. When it was pointed out that small cars make frequent appearances in British Columbia, the C.P.R. officials assured the meeting that efforts would be made to remedy this. The resolution passed, minus the reference to small cars.

A resolution was passed dealing with freight rates. The fruit growers want the same rates into Winnipeg as is enjoyed by Ontario, in order to be able to compete on an equality. In the discussion on this resolution, Mr. Lanigan said that the real competition in Winnipeg was the Washington, not the Ontario fruit, and that the former was driving the others out of the market. This was not because the foreign fruit was better, but because the Washington growers were dumping their second grade fruit into Winnipeg at prices which were too tempting for the dealers. He said also that the Canadian grower is handicapped by the law. He is obliged to pack and grade his fruit in accordance with the requirements of the Fruit Marks Act and that this Act, which was originally adopted to protect the Ontario growers, who do not suffer from American competition, did not apply to British Columbia fruit, arriving in Winnipeg in closed packages. Mr. Lanigan read a lawyer's opinion in support of this view of the law.

Mr. Maxwell Smith, Dominion Fruit Inspector, took exception to Mr. Lanigan's view of the law. Whatever might be the case in the northwest, he had successfully conducted several prosecutions of dealers offering American fruit for sale which had not been properly graded. Mr. Smith admitted, however, that there were only two inspectors in the northwest, a wholly insufficient number to inspect the fruit shipments properly.

In the course of an interesting address, Mr. A. J. Alcock, of Penticton, pointed out that the growers' greatest problem is in the matter of distributing and marketing the fruit; last year, the growers sold fruit for three cents a pound and the freight rate to the northwest markets was about three-

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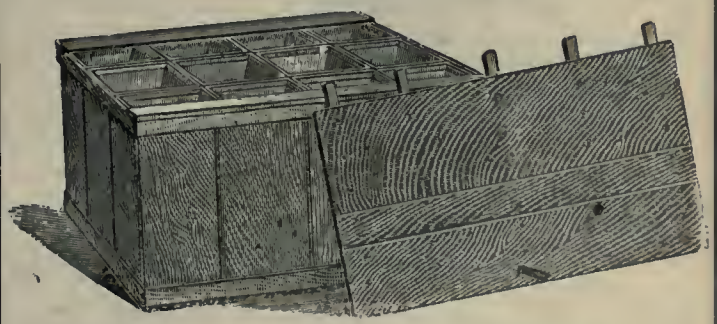

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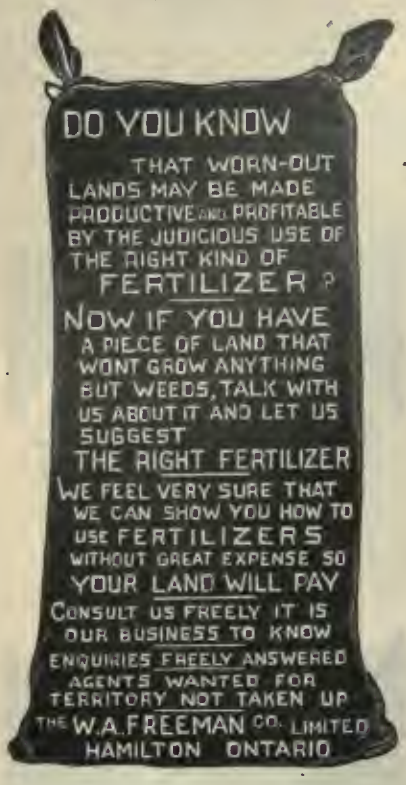
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THE RIGHT FERTILIZER
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quarters of a cent a pound, where the same fruit retailed for from 15 to 20 cents a pound. Who is getting the difference ? The speaker claimed that the retailers on the prairie were making from 75 to 300 per cent. profit on the fruit that they handle. Arrangements should be made so that the grower could deal directly with the consumer, and the speaker suggested a plan whereby the consumer could deposit the money in a bank and then send his receipt and order direct to the grower. Such a scheme, it was pointed out, would open up an unlimited market. It would benefit not only the grower but also the consumer, who is now compelled to pay too much for fruit.

It was anounced by Mr. W. F. Stout, of the Dominion Express Co., that this season his company would make the experiment of handling soft fruits. The statement was received with applause. An interesting discussion took place on the benefits of co-operation. The formation of district unions was urged, which later could be merged into a central organization. The question of cold storage was gone over and the desirability of fruit being properly cooled before shipment was brought out. A resolution was passed asking the C. P. R. to undertake the construction of cold storage plants at Vancouver and at the principal transfer points. A resolution was passed, asking the Dominion government to raise the duty on fresh fruit.

Okanagan Valley, B.C.

The following resolution was passed recently by the associated boards of trade of the Okanagan Valley, and sent to the Department of Agriculture at Ottawa:

"Whereas the grading and marking of fruit in the United States differ from the grading and marking required by the Inspection and Sale Act, which difference operates to the prejudice of Canadian shippers,

"And whereas the said Act appears to have been very loosely enforced in 1908 on fruit imported from the United States to points in Alberta, Saskatchewan and Manitoba,

"And whereas this appears to have been the result of the lack of a sufficient number of competent inspectors familiar with Canadian and particularly British Columbia and Pacific Coast fruit;

"Be it resolved that all the fruit thus imported into Canada should be made to conform with all the requirements of the said Act as to grading and marking; and to insure such conformity all imported fruit should be rigidly inspected; and for that purpose an adequate staff of competent inspectors should be employed."

Manitoba

J. Cochrane Smith

At the annual convention of the Western Horticultural Society, that was reported briefly in the last issue of THE CANADIAN HORTICULTURIST, Mr. D. W. Buchanan, of St. Charles, Man., gave an interesting address on "Ornamental Gardening For Winter Effect." The speaker pointed out that the short season of the western provinces affords no excuse for lack of gardening as there are many hardy perennial flowers and blooming plants that will withstand for a long time the early frosts and rigors of the western climate and which will amply repay for care and cultivation. The best varieties to plant both for summer and winter effect were mentioned. This address will be reported at greater length in a later issue.

"The Planning and Planting of Grounds and Lawns in Prairie Districts," was the

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subject of an address by Mr. Norman M. Ross, Superintendent, Foresty Branch, Indian Head, Sask. This was illustrated by numerous views. The speaker said that, in planting, straight lines should be avoided. Best effects are secured by planting similar species of trees and shrubs in clumps or groups rather than separately.

Dr. H. M. Speechly, Pilot Mound, Man., gave reasons why western people should take a greater interest in forestry and re-forestration and pointed out that at the present rate of consumption, the supply of timber would become exhausted within the next century unless something were done. A practical address was given by Mr. W. G. Scott on "The Improvement of a Rural Home." Rev. Dr. Baird, of Winnipeg, dealt with "The Cultivation of Pæonies." The subject of "Hedges for the Country and City" was discussed by Prof. S. A. Bedford, M.A.C., Winnipeg. Other addresses were: "Seeds from the Dealers' Point of View," by C. J. Turnbull, Winnipeg; "Flowers, the Farmers' Wife Can Grow," Thos. Jackson, M.A.C., Winnipeg; "Shelter Belts and Wind-Breaks," by J. J. Ring, Crystal City, Man.; "Birds in Relation to Forests," J. J. Golden, Deputy Minister of Agriculture, Winnipeg, ten-minute talks by Messrs. Saville, Walker and Wimsett, students of the M.A.C.; and some others. Most of these addresses will appear in part or in full in later issues of THE CANADIAN HORTICULTURIST.

Montreal

E. H. Wartman, Dominion Fruit Inspector

It is only in large cities like Montreal, New York and Chicago, that we can feast our eyes on varieties of fruits such as mangos, persimmons, grapes, strawberries, plums, Bartlett pears, nectarines, etc. These fruits are for sale here from India, Ceylon, Cape Town and Italy, making quite a selection to choose from. Of course, transportation and duties make prices high. The wealthy have the privilege to gratify their appetites by using these delicious foreign fruits.

Great care has to be exercised in packing such tender fruit. They are protected by excelsior and cotton batting to such an extent that they arrive in good condition

California Navel Oranges are in big supply and cheaper than for years, and quality very superior.

Apples in cold storage are in short supply. They seem to be keeping well and prices rule high. Oregon apples are shown in Walter Paul's grocery at 75 cents a dozen of the Esopus Spitzenburg variety. Strawberries from Florida are arriving in fine order in imperial quart boxes and retail at 65 cents.

Nova Scotia

Eunice Watts

During the past two months institute meetings have been held at various parts of the province, chiefly in the Annapolis Valley. These meetings, with the exception of the Seed Fair held at Berwick, were addressed by King's County men. Owing to the lateness of the season, and the exclusion of warehouse men from entries, the apple display at the Seed Fair was characterized by quality rather than quantity, but there were large entries of seeds and potatoes which were exceptionally fine, and the attendance and interest of the people seem to be on the increase. Lectures on potatoes were given by Mr. L. D. Robinson, and on dairying by Mr. Frank Foster, while Mr. W. H. Woodworth took up orcharding.

Mr. Woodworth said that we needed more orchards. The young people to-day could not see far enough ahead and they were making a great mistake in not planting apple trees. The best orchard results were obtained on a rich clay loom which retains the fertilizer better than the lighter soils. It was not advisable to plant apple trees nearer than 40 feet, and we had made mistakes in the past by not preparing the ground before palnting and by importing poor stock.

With regard to pruning the speaker pointed out that much harm had been done by excessive trimming and the removal of fruit spurs. It was foolish to head young trees too high for the stock will not be so stout as a low standard which is easier to spray, pick, prune and handle in general.

Turning his attention to manures, Mr. Woodworth deplored the method of keeping the same under the eaves, and said that one load of manure from the basement cellar was worth four left out in the weather, as valuable constituents were soluble and washed away in the drainage. Nitrogen is best applied in the form of summer vetch, which with the addition of 500 pounds of ground bone and 200 of potash made an excellent fertilizer. Farm yard manure was better for young trees than nitrate of soda, which produces too much young wood which is apt to he winter killed.

It was a good thing to plow orchards in the fall, thus burying the leaves affected with spot. Light lands could be plowed in spring, but there was not enough difference between the results of fall and spring plowing to make it a fixed rule.

Strawberry Culture

Editor, THE CANADIAN HORTICULTURIST: —The article in last December issue, by Mr. Rittenhouse, has many valuable points, but there are a few things in it which my experience has taught me are not applicable or advisable for all strawberry growers. His plan for preparation of the soil is excellent, also his advice about selection of plants. But my experience regarding time of planting does not correspond with his. My best successes have been with plants set just as soon as I can work the ground; in fact, two years ago I received some plants from the United States before the frost was all out of the ground, and I had difficulty in getting the spade deep enough into the ground to admit the roots to proper depth, but without harrowing the ground which, of course had been fall plowed. I got them in and never had a better stand of plants than these gave me. We had frost afterwards that froze the ground quite hard, yet did not seem to injure the plants.

In setting, I use two boys to take turns placing the plants in the hole made by the spade and can thus set about 4,000 in a day. In making the holes, I hold the front of the spade towards me, pressing the handle from me a little and back again, having the hole on the side of the spade opposite from me so that, when the plant is dropped in and the spade withdrawn, I can press the earth against the roots with my foot without any inconvenience, thus attaining speed as well as effectiveness.

We cannot put too much stress on the desirability of cultivating with a light cultivator as soon as the plants are set. It is also advisable to use the fingers around every plant, to stir the soil about them, leaving a little loose earth on top.

I, too, have had serious damage threatened by cut worms but have managed to exterminate them completely as soon as detected, by mixing a small quantity of Paris green in slightly moistened bran and scattering it lightly along the rows. The worms are very fond of bran and seem to eat it in preference to the foliage. On getting the poison, they crawl under the surface of the ground and die.

While I am aware that Williams is the great commercial berry at Jordan, I often wonder why it is. I do not know of any authentic comparison test that has ever placed Williams higher, or even as high in yield, as many better berries. While it is a good shipper, it's green tip and poor color makes it a very unattractive market berry. In our market, when Williams were a drug at seven cents a box, I sold Busters at 15 cents, and the latter is a much better yielder. True, Buster is not so good a shipper but Lovett, Sample and Parson's Beauty, are as good shippers, as good yielders and decidedly better sellers. I now have eight acres under strawberries, including 62 varieties, but only planted 25 plants of Williams last spring.—W. J. Kerr, Ottawa.

Fall Bulb Planting

Editor, THE CANADIAN HORTICULTURIST: In reply to the question about bulb planting, from Mr. B. Gott, of Strathroy, Ont., that appeared in the December issue of THE CANADIAN HORTICULTURIST, I may say that our method has been to cut the seed pods off after blooming, and to give the foliage as long to mature as practicable. As we use the beds for other flowering and for ornamental material, we lift the bulbs. A man and boy are provided with a number of "flats" (shallow boxes). With a spade the former lifts the bulbs and foliage and the boy lays them carefully in the flat, placing an inch or so of earth in the bottom and a little loose earth on top. A label is placed with each variety, to keep it distinct from the others. The bulbs are then placed in a cool cellar or, if this is not available, in some cool shady nook in the garden out of sight. It is surprising how quickly the beds can be cleared with the right kind of help.

About the middle of October, the buds are prepared for planting. The bulbs are sorted. Those that are large enough to bloom are kept and the small ones are thrown out. As these bulbs naturally deteriorate, we mix each year the old ones with those newly imported. We plant some 20,000 tulip bulbs, which are imported direct from Holland. We have observed in planting bulbs that when left alone they were better the second year than the first, but they deteriorate rapidly in this country. Some seasons are more favorable than others. The tulip dislikes a high, sunny temperature. Light shading will prolong their blooming season. They deteriorate more quickly in St. John, where the atmosphere is cool and humid, than they do in Fredericton, where we have hot, southerly winds.—J. Bebbington, Sr., Fredericton, N. B.

The Imperial Bank of Canada has recently opened a branch of the bank at Gow Ganda, Ont., and at Lethbridge, Alta.

Have you received a notice that your subscription has expired? Renew promptly, so as not to miss an issue of the paper. We cannot promise to send back copies.

The Ottawa branch of the Ontario Vegetable Growers' Association has prepared an excellent programme for this year. It is as follows: April 13,—"Celery Culture" by H. Holz; May 11,—"Insect Enemies of Vegetable Gardens," by A. Gibson; Sept. 14,—"Melon Culture," by Jas. Fox and W. Frick; Oct. 12,—"Fruit Culture at Ottawa," by W. T. Macoun and W. J. Kerr; Nov. 9,—"Potato Culture," by J. McMullen and F. Fear.

FRUIT CROP FORECAST

From present indications it would seem that fruit trees and bushes have come through the winter in good condition. While it is early to state definitely the actual condition of fruit buds there appear to be good prospects for a crop this coming season. In some localities strawberry plants have come through poorly. This is due partly to the lack of plants made last season on account of growth, partly to lack of snow for covering during the winter, and partly to ice. Among the crop reports received from correspondents of THE CANADIAN HORTICULTURIST are the following:

NEW WESTMINSTER CO., B.C.

Hammond.—Tree fruits of all kinds have come through in excellent condition, with the promise of full crops. Small fruits have wintered well with the exception of strawberries, which have been injured through excess of moisture in the ground at the time of freezing.—C. P. M.

YALE-CARIBOU., B.C.

Peachland.—Owing to the winter having been extra cold, we expect a light crop of peaches; the fruit buds appear somewhat damaged. Plums, cherries, apples and small fruits promise good crops. Most trees appear healthy; on wet land some of them may have suffered.—C. A.

MACDONALD CO., MAN.

St. Charles.—Last fall was favorable from two points, viz., the wood was well ripened and the ground was moist. Under these conditions we expect that fruit trees and bushels will winter well.—D. W. B.

KENT CO., ONT.

Chatham.—Buds seem to be in good condition with possible exception of peaches, which are more or less injured, if not, entirely so. Plums and apples promise well.—W. D. A. R.

LAMBTON CO., ONT.

Forest.—All fruits have wintered well. Peaches have very few killed buds.—D. J.

NORFOLK CO., ONT.

Simcoe.—Apples have come through the winter well. Strawberries have not a heavy setting of plants.—J. E. J.

OXFORD CO., ONT.

Ingersoll.—There has been little or no injury to fruit trees and bushes from the past winter.—J. C. H.

HALTON CO., ONT.

Oakville.—Trees are in good shape, also bush fruits. Strawberries look well.—W. H. McN.

DURHAM CO., ONT.

Newcastle.—Most varieties of apples, plums, cherries and Bartlett pears are full of fruit buds. Strawberry rows are narrow because of the dry fall.—W. H. G.

LINCOLN CO., ONT.

Grimsby.—Peaches promise about half a crop. Conditions are favorable for other fruits. Spraying with lime-sulphur wash is very general; some growers are trying the concentrated solution.—L. W.

St. Catharines.—Strawberries have wintered fairly well, but it still remains to be seen how the young plants start, that did not get a good root growth last summer owing to drought. Peach crop promises to be fair; although one half or more of the buds have been injured, there will be plenty to supply the public.—R. T.

ONTARIO CO., ONT.

Oshawa.—Fruit trees and bushes have wintered well. Greenings are full of blossom buds and Baldwins have a fair supply. Last spring and summer we sprayed with Gillett's Lye for the oyster-shell scale and, as a result, there are few or none of the pests now on the trees.—E. L.

CHATEAUGUAY CO., QUE.

Chateauguay Basin.—Apples, plum, cherries and small fruits seem to have wintered well.—P. R.

HOCHELAGA CO., QUE.

Westmount.—Trees have come through fairly well, although some of them, especially cherry, suffered injury from ice storms.—R. B.

L'ISLET CO., QUE.

Village des Aulnaies.—The winter has not been severe in the eastern part of the province. No damage has occurred to wood and fruit buds.—A. D.

YORK CO., N. B.

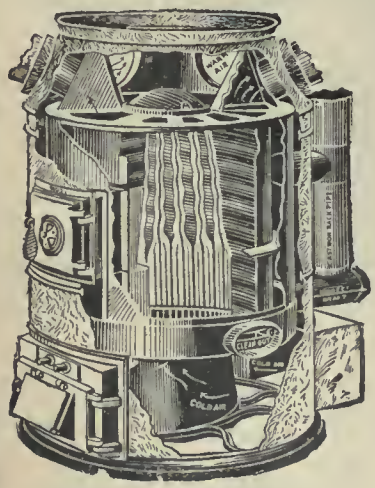
Fredericton.—Fruit buds appear to be in good condition. Nests of tent caterpillars and other insects are prevalent.—J. C. G.

ANNAPOLIS CO., N. S.

Paradise.—Fruit buds look healthy. Peach trees do not appear to have been killed back as much as usual. The prospects for an apple crop are good. We had plenty of canker worms last spring; the indications are that there will be more this season, although precautions have been taken to check them.—B. S.

KING'S CO., N.S.

Kentville. — Fruit trees have come through in fine condition. The buds look grand. The prospects are for a very heavy crop. Many new orchards will be planted this spring. Valley farmers had good returns during past season.—M. G. DeW.



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One outstanding feature of the Kelsey System is that no heat is lost by radiation in the cellar of basement.

All air, as quickly as heated, passes through the hot air chamber and on to the part of the building to be heated. This is only one of the distinctive features that make the KELSEY like no other Heater.

It is more economical.

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It is more durable than any other.

WRITE US AND LET US EXPLAIN FULLY

The superintendent of parks for London, Ont., Mr. J. S. Pearce, died in that city on Thursday, March 25th, after four days' illness. Mr. Pearce was an able and enthusiastic horticulturist. At one time he was a member of the firm of Pearce & Weld, seed merchants, and later or J. S. Pearce & Co. An article from his pen appears on another page of this issue of THE CANADIAN HORTICULTURIST. The loss of Mr. Pearce will be felt sincerely by all persons who knew him, either personally or through his work.

Re Queen Victoria Park

Editor, THE CANADIAN HORTICULTURIST:
I think that all practical gardeners will suport you in your stand re Niagara Falls Park. The commissioners have the opportunity to make this the finest park on the continent, but to do this they *must have* a first-class gardener on their staff, one with a wide knowledge of his profession and practical experience in planting and caring for the stock under his care. He must have good taste, and foresight, one who knows the effect wanted and how to get it.

There are several such men to be had right here in Canada, men who would delight to put their best efforts into making our national park the finest in the world. I think that you are doing good work in bringing this matter before the commissioners and the government.—Thos. Manton, Eglinton, Ont.

The Philosopher of Metal Town

"Now, I'm not a professional builder or a contractor or a carpenter, but it seems to me I have had some building problem or other on my hands for many years—first, my own, then my boys', then my nephews' and my grand-boys'.

"Twenty-five years ago I became a pioneer user of metallic building materials.

"It was only a barn, and not much of a barn at that, which I first covered with metallic shingles—the product of the Metallic Roofing Co.

"And, mind you, that was twenty-five years ago, and the roof is weather-proof now. It has never needed repairs. I have built many barns since then, but I have never discovered any sane reason for roofing them differently. You can't improve on a straight 25-year test.

"Then, besides, I always believe in dealing with the biggest people in any manufacturing business. You share in the merits of their goods which have made them the biggest in their line. That's why I stick to the Metallic Roofing Co.—they're the largest architectural sheet metal firm in Canada, with an output larger than all others combined.

"But it is not of barns alone I would speak. You note, perhaps, that they call me the 'philosopher of Metal Town'. That's because I'm a public character in a way.

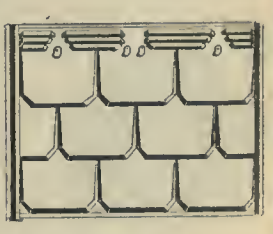
"I've been chairman of many building committees—church, school, library, et cetera, and I always find the metallic man has been my most useful assistant. Outside or inside, front or back, ceiling or sides, I find they all need the metallic man's aid.

"I will tell you more about our 'metal town' when we're better acquainted. I can quote some comparative figures which will interest you. To-day I'm emphasizing shingles.

"You can get them either galvanized or painted. They are always reliable. They are more economically durable and quicker to apply than any others, fitting accurately, and therefore most easily laid. They have been thoroughly tested in all kinds of climates, invariably proving fire, lightning, rust and weather proof.

"If you're building make sure of satisfaction by ordering Eastlake's for the roof. Fullest information if you write."

THE EASTLAKE STEEL SHINGLES



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MANUFACTURERS FOR METAL TOWNS

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STRAWBERRIES
large, red and luscious, are grown from DOWNHAM'S choice, vigorous Strawberry Plants. None better. Best varieties. Also Raspberry and Blackberry Plants. Catalogue Free.
Write JOHN DOWNHAM
Strathroy, Ont.

Paris Green - Arsenate of Soda

Editor, THE CANADIAN HORTICULTURIST: —In a previous issue I noticed a letter rightly sizing up the poor quality of Paris green. Since I had given the impression in a previous letter that I considered Paris green as all right and preferable to the new and little tried preparations being yearly put on the market, I want to state my position now in regard thereto.

I agree with the writer that Paris green is being adulterated more and more every year. I have found in the six different makes that I have tested all the way from 5 per cent. to 40 per cent. of sediment in the ammonia test. The fact, however, that we have this simple test precludes the possibility of being cheated outright and it simply means adding more Paris green and thus paying a higher price for our actual poison. I may add also that the Paris green made by the English Bergers has never given more than 5 per cent. sediment when dissolved in *aqua ammonia*.

Again, when in that article, I used the concrete term "Paris green" to cover the general meaning of known arsenical poisons; i.e., stick to the old familiar ones until we are satisfied that the new ones are better. Now, in my own practice, I have not used Paris green for four seasons and I was probably the first one in this district to give it up in favor of arsenate of soda. The reason I mentioned Paris green in the article was because I knew that nine-tenths of farmers would rather use an inferior prepared article than go to the trouble of preparing a good one. Since I have given the arsenic- soda poison a four year's trial and never found it to fail, my advice is, to the lazy farmer, "buy Paris green and test it"; to the farmer who is awake, "make your own poison from the known and unadulterated ingredients, sal soda and white arsenic. It is cheaper and more effective."—R. J. Messenger, Bridgetown, N. S.

Apterite Does Its Work.—The soil fumigant, Apterite, that is being introduced by Wm. Cooper and Nephews, Toronto, is proving to be all that is claimed for it. Among the recent testimonials received by this firm is the following from Geo. Hollis, Bracondale, Ont: "The can of Apterite that I had from you about two months ago has been used in fern boxes; that is, 'flats.' The bottom of the boxes are covered with soil about one inch, a two-inch pot of Apterite was sprinkled over this, the box filled up with soil and the small ferns then planted. No mites have been seen. On some boxes, where no Apterite was put, the surface is full of mites. I have also used it in seed boxes of petunias and so far no mites have been seen. Last year the petunia boxes were full of mites, which worked the little plants out of the soil, causing a big loss of plants. I also find, by sprinkling a small quantity about once a week on shelves or benches where seed boxes are put, no woodlice come near them. When planting chrysanthemums this year, I shall try Apterite in the soil for cut worms, which last year I had quite a dose of. It will be tried also on asters outside for the greatest pest of all, the tarnished plant bug."

All who are interested in vegetable growing should take THE CANADIAN HORTICULTURIST. The paper is not only a helper, but it also keeps one posted on all the latest suggestions made in connection with the Ontario Vegetable Growers' Association. Without THE CANADIAN HORTICULTURIST, one cannot hope to make the greatest success, as it is the foundation work for any practical gardener.—J. N. Watts, Secretary, Kingston Branch of the Ontario Vegetable Growers' Association.

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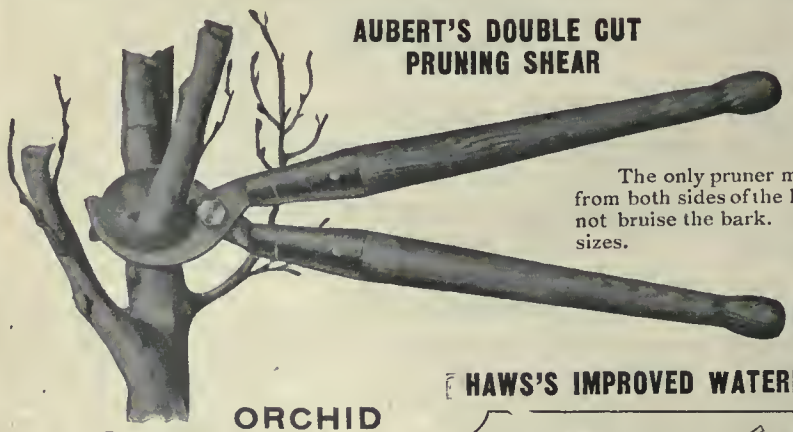

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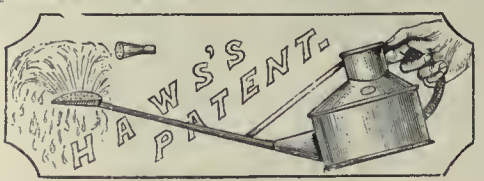

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The Canadian Horticulturist

Vol. XXXII MAY, 1909 No. 5

The Proper Cultivation of Strawberries

G. LeRoy Oliphant, Clarkson, Ontario

THE ground on which strawberries are to be planted should be prepared for them by manuring well after the preceding crop is taken off. A good coat of horse manure is preferable to any other manure as it seems to add to the ground that which is most necessary for the growing of strawberries. Potatoes or corn are recommended as good crops to precede strawberries as they need hoeing, thus keeping down small weeds. If these weeds are kept down and not allowed to go to seed, there will not be any seeding of the ground to spring up in the early spring when the young strawberry plants are shooting their first runners; if there are a lot of weeds around a plant one often cuts off the plant in trying to get close to it with the hoe.

After getting the ground well worked (that is, to have about six inches of loose soil on top) a roller should be run over it. This is to level it and also to break up any large or hard lumps that may be on the field. A field is not considered ready until all the ground is as smooth as possible and devoid of all sticks, stones or sods.

PLANTING

Planting should be done as soon as the plants can be secured. Good healthy plants should always be selected and especially if the soil is light, for in case of a drought or short dry spell just after planting, a small plant would wither and die while a large plant, being sturdier, is not so easily killed. This is one reason why the Williams and Glen Mary are so popular. They are large plants and generally have good long roots.

When planting a line is used so as to have the rows straight. Care must be taken to keep the line tight, and always plant on the same side of it. The plants should be put from eighteen to twenty-four inches apart. The smaller the plants are the closer they should be planted. The holes are always made with a spade and wedge-shaped. This is done by moving the spade back and forth after sticking it in the ground. The plant is then placed in the hole, the roots being kept perfectly straight, and then the earth is pushed back, filling in the hole. A practised man can do this handily with one foot. The most important thing in planting is not to cover the heart of the plant with earth when filling in the hole. The rows should be three and a-half feet apart.

Before planting, all plants should be looked over and all the dead leaves and runners cut off. This must be done and the plants then placed in good order with the roots out straight, so that they can be easily picked up and dipped in water. This serves to keep them moist and also to keep the roots straight.

After the plants have a good start, they should be hoed once a week during the whole summer, to keep the weeds down and also to keep the runners trained. All blossoms should be pulled off the first year.

CARE IN FALL

In the fall, after the plants have stopped growing, yet before the ground freezes, a wide shoe is put on the back of the cultivator to throw out a deep furrow. This allows any water that may collect on the ground to run off.

Unequalled

I do not think that THE CANADIAN HORTICULTURIST is equalled by any publication on the continent.—W. J. Brandrith, Secretary, British Columbia Fruit Growers' Association, Ladner, B. C.

As soon as the ground freezes in the late fall, the vines should be covered with long strawy horse manure. This covering is left on until spring and, as soon as the vines begin to shoot up and there is no danger of frosts, this may be shaken up loosely and left for about a week. Then it is all raked off the vines and left between the rows. This keeps the weeds down and also keeps the ground moist. The manure should never be taken from between the rows as it keeps the berries on the edge of the row from getting sandy after a rain. The berries on the edge of the row are always the best. No weeds should be allowed to go to seed.

TREATMENT OF FRUITING PATCH

After the fruit is all taken off, the mower is run over the patch and the tops of the vines are cut off. This is done so as to start a new growth when the vines start growing again. The rows, which are now about two feet wide, should be plowed down to about one foot, that is to take some off each side of the row. Do not plow too deeply, then go along the row with a cultivator to shake out the dirt from the roots of the plants that have been plowed out. If once is not sufficient, go through a second time. Let a man go through now with a fork to shake out the loose vines and throw them in heaps. The usual plan is to throw five rows into one. This refuse is all hauled off, and dumped out of the way; if there is not too much earth in it, it could be mixed with manure and rotted. Everything being out of the way now, the cultivator is applied once a week until it freezes up. They should of course be kept free from all weeds as much as possible. Another covering of manure is put on in the fall, and dealt with as in the preceding year.

Strawberry beds are seldom kept over two seasons. It is not policy to do so, as the beetle that attacks the blossoms most severely breeds in the old beds. Some prominent fruit growers prophesy that the time is not far off when a bed will be plowed up after one season of bearing.

[Note.—The majority of our commercial growers already follow the practice of cropping a strawberry plantation only once.—Editor.]

Fruits For British Columbia

As soil and climatic conditions vary widely in British Columbia, it is difficult to recommend a list of varieties of fruits that would be suitable for planting in all parts of the province. This fact is pointed out in a letter that was received by THE CANADIAN HORTICULTURIST from Mr. Maxwell Smith, Dominion Fruit Inspector, Vancouver, which is as follows:

"It is quite impossible for me or anybody else to answer your question directly as to the best standard varieties of fruits to plant in British Columbia. Our climatic and soil conditions are so diversified, that the same varieties which might be a success (and also have market value) in one locality, might not be the varieties to recommend for another, and I therefore hesitate to give my opinion unless it were in answer to a direct ques-

tion as to the varieties which I might deem the best for some specific locality. There are also many varieties which do well, but which I should not recommend for planting in a commercial orchard. Some of the varieties of apples which will be regarded as a success and profitable to the growers of British Columbia in the near future, are the Grime's Golden, McIntosh Red, Wealthy, Cox's Orange Pippin, Yellow Newtown Pippin, Northern Spy, Ribston Pippin, Gravenstein, Esopus Spitzenburg and Jonathan. The Italian Prune is the one member of the plum family that may be relied upon in any of the fruit growing districts of the province."

Strawberry Picking Scene on Farm of Mr Jas. E. Johnson, Simcoe, Ontario

Mr. W. J. Brandrith, Ladner, secretary-treasurer of the British Columbia Fruit Growers' Association, writes as follows: "With regard to standard varieties, it is doubtful if two men in a neighborhood would agree. After twenty-two years' experience in the Lower Fraser Valley, my choice for commercial purposes would be: Apples, — Yellow Transparent ,Duchess, Wealthy, King, Jonathan, Northern Spy and Salome; pears, — Bartlett, Boussock, Sheldon; plums,—Bradshaw, Italian Prune; sweet cherries,—Windsor, Lambert; sour cherries,—Olivet, English Morrello; raspberries,—Cuthbert; blackberry,—Lawton.

In the article on "Raspberry Culture" by Mr. N. E. Mallory in the April CANADIAN HORTICULTURIST, it was stated that laterals should be cut back in early spring to about three inches. It should have read "fourteen inches."

The usual distances apart for planting tree fruits are: Apples, 30 to 40 feet each way; apples, dwarf, 10 to 15; pears, 20 to 30; pears, dwarf, 10 to 15; plums, 16 to 20; peaches, 16 to 20; cherries, 16 to 25; apricots, 16 to 20; quinces, 8 to 14. Grapes are planted 8 to 12 feet apart each way.

Peach Yellows*

M. B. Waite, Pathologist in Charge, Investigations of Diseases of Fruits, U.S. Department of Agriculture

IN the early discussion of peach yellows around Philadelphia mention was frequently made of destroying the diseased trees. It seemed to have occurred quite frequently to orchardists that this was the proper thing to do. In the outbreak at Benton Harbor, Michigan, in the early seventies, it was not only discussed but actual eradication was carried out by a number of men. The most decided step in the promotion of this method of fighting the disease seems to have been made, however, at South Haven, Michigan. A committee appointed by the South Haven Pomological Society, reporting in 1874, stated that where cases of yellows had been found in certain orchards and promptly removed, two years before, none occurred at the present time. They also brought out the point that new trees planted in the same place, were growing finely and appeared to be vigorous and healthy. They showed that it was impossible to cut off a single limb affected with the disease and that even where two affected peaches were found on the end of a limb and the limb removed, the yellows still persisted and destroyed the tree. The South Haven Pomological Society seems to have been the first society to persist in advocating and promoting the eradication of the yellows. The results were watched with interest by the Michigan growers and were in the main satisfactory around South Haven. Other districts in Michigan have followed their example, usually, however, after being hard hit and partially or wholly wiped out before they were willing to take up the work. In New York state, a great many of the better class of growers have been eradicating this disease for twenty years or more. I can cite the case of Mr. Jesse Lockwood and of Dr. C. A Ring, both of Olcott, New York, as excellent examples, also the orchard of Mr. Willard Hopkins of Youngstown, New York. In these cases, several near-by orchards less carefully handled have had serious destruction from the yellows and little peach.

*The sixth instalment of a paper read at the convention of the Ontario Fruit Growers' Association, held in Toronto last November.

ERADICATION TESTS

About six years ago, when the writer's investigations led him to the conclusion that little peach belonged to the yellows group, an eradication test was started in a definite area in Saugatuck township, Michigan. This area contained about seven square miles, was thickly planted to peach orchards and had about 140,000 peach trees. There were some 4,000 or 5,000 trees diseased that were found the first season. A small proportion of these, however, were affected with yellows. Three inspections were made and the diseased trees were removed with a fair degree of promptness after each inspection. The next year only between 400 and 500 diseased trees were found, being only a small fraction of one per cent. A slight increase of somewhat over a thousand trees were found the third season, evidently due to a local outbreak in the neighborhood, but the total number of diseased trees in this area was less than one per cent. Only about one-fifth of these were affected with yellows, the remaining four-fifths being little peach. Similar results were obtained by the local yellows commissioners in the fourth season, which was 1906, and the orchards in this area are still standing in good condition as far as the yellows and little peach are concerned.

A similar eradication test was started by the United States Department of Agriculture in 1906 in an area of some six or seven square miles around Youngstown, New York, in co-operation with the Cornell State Experiment Station, through arrangements with Professors Bailey and Craig. In general, it may be stated that from the eradication tests where careful records have been made over a considerable area and from the experience of the best worked orchards, of which there are a large number in Michigan and a good many in New York, it is considered that when ordinary conditions obtain, the annual loss from the yellows should be reduced to less than one per cent. per annum where prompt and careful eradication is done.

Produce the best that can be grown.

The land on which an orchard is to be planted should be in good condition. It should be under cultivation at least two years before setting the trees.

An Earth Mulch For Root Protection

J. A. Johnson, Grimsby, Ontario

IN the peach orchards of Mr. Hamilton Fleming, Grimsby, a corner of which is shown in the accompanying illustration, fall plowing is practised previous to the time of freezing with the object of leaving a loose mulch of earth to prevent the frost taking too severe a hold on the fibrous roots of the trees. The depth of plowing is only three inches, no deeper. Thus, there are three inches of non-frost conducting earth to act as a protection in winter.

Last year we tried as an experiment a cover crop of clover growing side by side with a patch that had been fall-plowed as has been already described. In the clover-sown portion, the frost penetrated more quickly and more deeply and remained considerably longer than in the fall-plowed portion. This showed the value of loose earth in resisting the inroads of frost, in comparison with the tightly packed and more solid form incidental to a cover crop. Besides, the solidity imparted to the ground by a cover crop, the packing of the ground during the picking season also affords reason for fall plowing.

I do not approve of an annual cover crop, believing that it collects the moisture that is essential to the full development of tree and fruit. On land that is deficient in humus, however, a cover crop sown once in, say, every three years may be beneficial.

As evidence of the success of the foregoing method, my experience of the past ten years with all kinds of fruit and with various soils is that I have never lost a tree by winter killing. In 1905, Mr. A. Burland purchased this farm and placed me in charge. It was then in bad condition, producing poor fruit and little of that. Owing to the practice of the method mentioned, improvement is so marked that the orchard now yields large crops of fruits that can truly be stamped "Fancy."

As soon as the land permits in spring, plowing is commenced. The soil is plowed away from the trees and at a depth of about three inches, no more. Immediately following the plowing, the cultivator and harrow are brought into use. At least once a week and, in dry seasons, twice a week, the orchard is gone through. This is continued until the middle of September. The land is then given a short period of rest. This allows chickweed and other light weeds time to grow until time for fall plowing.

NOTE.—Mr. Johnson's theory in respect to fall plowing is interesting. Expressions of opinion in regard to it from those who have followed the practice and from others, will be welcomed for publication in THE CANADIAN HORTICULTURIST.—*Editor.*

A Beautiful Lawn and Home in the Famous Niagara Peninsula

Residence of Mr. Hamilton Fleming, Grimsby. A corner of the Peach orchard is shown. This is managed by Mr. J. A. Johnson.

Why We Prune

Prof. J. C. Whitten, College of Agriculture, Columbia, Missouri

(Continued from last issue)

IN recent years an investigation of the dormant period of trees and of problems relating to their hardiness is throwing much light upon the subject of pruning. This applies with particular force to pruning the peach.

For better understanding, let us adopt a somewhat technical conception of what is meant by the dormant period. Ordinarily we speak of the dormant period of a tree as being that period between the shedding of its leaves in autumn and its starting into new growth in spring.

Investigation has recently shown that during the first half of this winter-rest, our fruit trees are in a deep sleep, from which they cannot easily be awakened, but that during the last half of it they (particularly the peach) may easily be forced into growth, providing warmth and moisture are supplied.

One may easily test this point. If a peach tree is taken from the open and planted in the greenhouse during the first half of winter, it will lie dormant until about midwinter. If it is brought to the greenhouse in midwinter or later, it will promptly begin to grow. The same thing may be shown by bringing in peach twigs and putting them in a vase of water in a warm room. During the first half of winter they remain dormant, but they are ready to begin growth any time after midwinter.

Much of the winter killing of peach buds is due to the fact that they start into slight growth on warm, sunny days during late winter, and this growth renders them too tender to endure subsequent cold. Much of this injury may be avoided by inducing their true dormant period (that deep sleep from which they are not easily awakened) to continue until later in the winter. The earlier a peach tree sheds its leaves or stops growing, the earlier its dormant period begins and the earlier may the buds become ready to grow if warm, sunny, winter days prevail. The later growth is kept up in autumn, the later will the trees shed their leaves and the longer will their dormant period continue.

If peach trees in this climate are cut back severely enough in winter so they grow late the following summer and shed their leaves after cold weather comes on, their buds are not likely to awaken into growth until danger of winter-killing is past. This may not apply in colder climates than ours, in which tender, late growth may be killed by excessively low temperatures, even though dormant.

Finally, the man who prunes should understand the habit of each kind of tree with which he works. He should be able to tell the age of the tree by the character of the limbs. It is desirable to be able to observe how much length growth has occurred during each year of the tree's history. The difference between fruit buds and wood buds should be dis-

tinguished. The pruner should be able to tell from the fruit scars and blossom scars on what years the trees have blossomed, when fruit set, and whether the fruit properly matured, as indicated by the character of the fruit scar. By comparing these evidences of fruitful and non-fruitful years with the amount of growth made each year and with the kind and degree of pruning which was done in any season, he may reason out for himself the proper pruning to pursue in order to secure a given result. In other words, the best book on pruning is to learn to read the life history of the tree, during all its past, by the characters which are plainly written on its twigs and limbs.

Lawn and Garden Hints for May

THE busiest month of the year for gardening is May. Plants that have been started earlier in the season must be watched carefully and there are scores of different kinds of plants and seeds that should go in the ground now. Sow your plants in straight lines so that cultivation may be performed easily and to have neatness and order. If you have not yet purchased all the seeds that you require, be sure to get only the best. A difference of a few cents or dollars in cost now will make a great difference in results.

Maple Trees Botchered to "Clear" Wires Overhead

The beauty and usefulness of street trees in our towns and cities are being destroyed by telephone and traction companies. This reckless destruction should be stopped.

THE KITCHEN GARDEN

The soil for vegetables should be dug deeply, and made as fine as possible for the reception of the seeds. When digging, work in plenty of well-rotted stable manure. If wood ashes are available, give an application of them also. The hardy varieties and kinds of vegetable seeds should be sown now. Sow in freshly stirred soil. Seeds require less depth of covering in spring than in summer. Seeds of beets, carrots, parsnips, and beans will germinate more quickly if they are soaked over night. Cucumber, squash, melon and corn should not be planted until all danger of frost is past.

The best time for transplanting is on a cloudy day or late in the afternoon or evening of hot days. If the sun is hot the following day, the plants may have to be shaded.

Sow radish seed in good soil. To have them crisp and tender, apply a little commercial fertilizer to make them grow rapidly. To have a continuous crop, sow the seeds every ten days or two weeks. A good variety is Scarlet White-topped Turnip.

Among the best varieties of lettuce are Big Boston and Black-seeded Simpson. For parsley, sow Double Curled. There are many good varieties of peas, including Gradus, Heroine and Stratagem. An excellent carrot is Chantenay. Two of the best onions are Yellow Globe Danvers and Large Red Wethersfield. One of the best parsnips is Hollow Crown. The best early beet is the dark Egyptian.

Keep the surface soil of the vegetable garden well stirred and cultivated. Do not allow the weeds to get a start.

WITH THE FRUITS

Every home garden should have a few strawberry plants. Choose varieties that have perfect blossoms. If an imperfect flowering variety is preferred, there must be planted near it some plants with perfect flowers to fertilize the others. There are many excellent varieties. Those that do well in some localities often are failures in others. Ask a neighbor who has been successful with strawberries for the names of kinds that have done well with him. The blossoms should be removed from the plants during the first season of growth.

Remove the mulch from the old strawberry bed and leave it between the rows. It will help to save the moisture, to prevent the fruit being splashed with earth during rains and to make the work of picking cleaner for yourself.

If the garden is large enough, it should contain a few bushes of gooseberries, currants, raspberries and blackberries. Plant them now.

Watch the currant and gooseberry bushes for worms. Dust the plants with powdered Hellebore or spray with one ounce of Paris green to about ten pounds of water.

THE FLOWER GARDEN

If your rose bushes have not yet been pruned, do it now. The best time is just as the buds are starting into growth. Cut out the dead and weak branches. Prune back the remaining ones to within a few inches of the old wood. The shoots from the base of the bush may be cut back to about fifteen inches from the ground. Shoots that spring from points below this should be removed. Climbing roses may be cut back as desired. If pruned regularly, they will become more compact and will bloom more profusely.

Plants that have been started from seed in the house should be hardened-off before transplanting to the open. Expose them for a few hours a day to outside influences.

Sow seeds of nasturtiums, balsam and portulaca after the middle of the month. The latter is an excellent hot weather plant. Sow sweet peas. There is more danger of being too late with these than too early.

Corms of gladoli may be planted towards the end of the month or early in June. Plant them three or four inches deep and about six or eight inches apart.

Secure and plant some new perennials in the herbaceous border. This class of plants are always interesting.

A Hedge of Spiraea Van Houttei
Residence of Mr. Richard Devlin, Ottawa

ON THE LAWN

Repair the bare patches on the lawn by seeding or sodding. If sods are to be used, cut a square area about the injured patch, and remove the old sod surface and soil from within this square to the depth of a sod. Roughen the surface of the soil with a rake. Lay the sods in strips closely together. Pound firmly with the back of a spade, water immediately and continue the watering until the new sod has made a union with the soil beneath.

For seeding a lawn a good mixture is Kentucky blue grass, Red Top and White Dutch clover, equal parts by weight. Sow at the rate of one quart to the square rod.

Trim the evergreen hedge just before growth starts. Never prune back of the growing twigs. A hedge must be clipped regularly each year.

To be satisfied with our work in transplanting, it is not sufficient to make a tree live, but it must grow.

A Season's Experience in Alberta

D. W. Spice, Lacombe

FOR my first season with flowers in Alberta, I chose only those annuals whose culture I was familiar with, such as asters, sweet peas, stocks, *Phlox Drummondii*, Shirley poppies, lupines, candytuft, alyssum, nasturtiums, godetias, and so forth. The results were a very pleasant surprise to me, as so many wise ones had told me how foolish I was to try to grow flowers in Alberta. Friends from Ontario who visited us were greatly surprised at the wonderful growth and profusion of bloom, especially so with the asters, phlox, sweet peas and stocks.

Owing to our short summer season, I found it much better to start most of my annuals in a hotbed early in April, and transplant the first week of June, just in time to catch the rains. During the long days of July and August, the growth and wealth of bloom was really wonderful.

I have also tried dahlias, German iris, bleeding heart, gladioli, hollyhocks and pæonies with splendid success. The hollyhocks and gladioli I started in the hotbed in empty fruit baskets, the kind we get plums and peaches in. They were soon up and doing. I gradually hardened them off. When they were ready for their permanent bed, I sunk box and all in the bed; by this means the roots were not disturbed and soon the plants were in full bloom, the wonder of many who had tried these without success.

In perennials, pansies head the list. Alberta's climate just suits them. My sixty-five-foot bed was a bewildering mass of blossoms from May until the real hard frosts came. I tried also larkspurs, sweet william, pinks, columbines, and found them to do splendidly. Last July, I sowed seeds of over twenty different perennials as an experiment. They went into their winter quarters strong, husky plants.

A Western Home that Has Flowers in Abundance

Residence of Mr. D. W. Spice, Lacombe, Alta. Flower beds on each side of lawn and on three sides of house containing dahlias, phlox, bleeding heart, iris, poppies, asters, stocks and nasturtiums.

Vegetable and Small Fruit Garden in Alberta, One Year from Unbroken Prairie

At rear of house shown in companion illustration. Around the lot are two rows of Manitoba Maples that made from four to seven feet of growth in two summers.

Buying vs. Saving Aster Seeds

Charles James Fox, South London, Ont.

The article in the March issue of THE CANADIAN HORTICULTURIST, entitled "How an Amateur Grows Asters," by W. Norman, of Elmira, will be read by many thousands. I think that the latter part of the article, if carried out, would prove a failure. For over sixty years I have grown asters, and if I want to "own the best in my neighborhood" I should not grow them from seed of my own saving. How many amateur growers are there who do not begin to pick the first and best flowers for their own use, also for the benefit of their neighbors who have no gardens?

Last year I bought seven packets in seven different colors, and each packet produced eighty per cent. of plants true to the color named on the packet. Mr. Norman must know that the seeds in those packets that could not be grown "by the acre like flax." It is only by a large amount of labor and great care in selection that such are produced. Each color is grown separately. Every plant showing the slightest signs of a wrong color is destroyed.

Such seed demands a fair price. It is far better to buy fifty seeds for twenty-five cents and grow, say, forty first-class aster plants, than to pay five cents for a packet containing 200 seeds and, after all the labor in transplanting two or three times, to find hardly a decent aster in the whole lot.

Five years ago a friend sent me a few seeds that he had raised from a plant of a lovely light shade of lavender. He picked off all side shoots, and saved the seed from four perfect flowers. I raised eighteen plants, ten of which gave white flowers, five red and pink shades, and the balance dark shades of lavender. My friend grew about sixty plants with about the same results, not one plant of the color from which the seed was produced. Why? Because alongside of the parent plant there was a bed of white ones, and the bees did the trick for him.

If good asters are wanted, buy the best seed from good and reliable seedsmen, and such seed cannot be sold at five cents a packet. It is those men who have for years made a study of the growing of seeds, that we have to thank for the great improvement of our asters during the last twenty years.

For the edges of borders, walks and drives, use an edging knife. Seedsmen sell them.

A Few Wild Elowers Suitable for Cultivation

E. Byfield, Toronto

OUR woods, fields and waysides furnish an abundance of humble, though none the less true, friends —flowers in their natural state, to whose simple, delicate beauty the flower lover may turn with pleasure from the wonderful creations of the plant wizard. In a short article like this, I must, of necessity, omit mention of all but a very few, and of these I shall speak only of those that will with a little care readily adapt themselves, if we choose to adopt them in our gardens.

I shall begin with that bright, little, early spring firstling, the hepatica. Running from white through every shade of pink into blue and purple, these dainty little star-shaped flowers completely carpet the ground where they are permitted to grow and propagate themselves. Flowering at the same time comes the mertensia, though not nearly so well known. It grows about a foot high, sending up a loose spike of pinkish buds that open out into bells of the most exquisite purplish blue, changing later to light blue. The owner of any garden might well be proud of these spring beauties that will run a race with his snowdrops and crocuses to see which will be out first.

Before these have entirely disappeared, the trillium, the bloodroot and the claytonia are well in bloom. The first is so well known as to need no description. The second is so beautiful that it is a great pity it is not better known. A pure white, poppy-like flower, an inch to an inch and a half across, with a rich golden centre, it is one of our loveliest flowers. The claytonia sends up a spike of about six inches crowned with several white or pinkish little bells. When I was a boy the woods in May were so covered with these dainty little clusters that you could not place your foot on the ground without crushing several. Now, only here and there in the settled part of the province, can these be found.

With the exit of these, come the late May and June flowers, taller and decidedly showy. Among these I would place first our own wild phlox; where allowed to colonize, it literally overshadows everything else in color. The eye seems to take in nothing but the lilac-blue that is everywhere present, while the air is filled with its fragrance. At the same time we have our wild columbine, fortunately so well known as to need no description, as no description could do it justice. If you want to see it send up a strong stalk three feet high and covered with great bunches of drooping ruby flowers, just plant a root in a moderately rich corner of your garden.

Two of our three Canadian lilies bloom in June—the red, or flame lily, and the meadow or field lily, which is yellow. The third, the turk's cap, blooms in July, and is of various hues of red and orange. In the wild state it grows four to five feet high, but under cultivation it will grow much taller. I have had one in my garden to send up, year after year, two stalks from the same bulb over eight feet high and crowned with forty lilies, all looking down apparently in silent wonder at the strange beings beneath who were looking up in wonder, not so silent, into their faces.

In July, also, we have those two gorgeous scarlet or vermillion flowers, the cardinal flower and bergamot, the bright, flame-like colors of which nothing can surpass. We have also the solomon seals, true and false, with dainty white flowers, the former at the tips of the stem, the latter in the axils of the leaves. Although the flowers are unpretentious, the deep bright green of the graceful foliage amply compensates. About this time also comes the butterfly weed or orange milkweed, the most beautiful of all the family.

August ushers in the sunflowers and rudbeckias, filling the fields and woods with golden yellow, while September brings us the bright golden rod and the more sombre aster. Of the latter, the varieties would seem to be almost endless from the dainty little star-like clusters of white and pink to the gorgeous purples and reds of the New England varieties. I have sent to four distant places for much advertised rare novelties of hardy asters only to find when they bloomed, that we had the identical plants growing wild in our neighborhood.

Have you a shady corner in your garden where on account of insufficient sunlight you have not been able to get anything to grow satisfactorily? Well, try a few of these wild denizens of the wood and include with them a liberal supply of ferns also from the wood, and your shady corner will soon be considered the cosy corner of the garden.

The Best Twenty-four Annuals*

A. W. Annandale, Toronto

My selection of the best twenty-four annuals for this district, is as follows: Asters, stocks, verbena, balsams, phlox, convolvulus, sweet peas, candytuft, dianthus, salpiglossis, mignonette, nasturtium, sweet alyssum, marigold, antirrhinum, scabiosa, eschscholtzia, nicotiana, petunia, poppy, zinnia, centaurea, calliopsis (or coreopsis), sun flower chrysanthemum.

There are a large number of hardy annuals that are not included in this list, which are well worthy of mention and are perfectly hardy. They are not grown to any extent here, as they are so little known. The following are a few of them: Adonis, clarkia, godetia, nigella, lavatera, hibiscus, *Amaranthus splendens* and gypsophila, which is a grand thing for cutting and mixes splendidly in bouquets.

All hardy annuals are easily cultivated. For early flowering, sow about March 20th in boxes two inches deep. If sown too early the plants usually grow spindly, and one can never get as good results. Sow in a greenhouse or a hotbed in a temperature of fifty to sixty degrees, and cover the seeds about three times their own depth with fine soil. Large seeds, such as balsam, sunflower and zinnia should be covered half an inch deep, while small seeds such as salpiglossis, petunia and nicotiana need not be covered at all, just pressed into the soil with a piece of glass. A common mistake in sowing flower, as well as other seeds, is covering too deeply. Press the surface firmly with a piece of board or glass, water with a fine spray and do not allow the soil to dry out.

The most suitable soil in which to sow seeds of the smaller kinds is a fine, rich, sandy loam, made up of well-rotted sods from an old pasture, thoroughly decomposed barnyard manure and sand. After the seeds are up, care must be taken to give them plenty of air and moisture, and yet not too much water, as they will be liable to damp off.

Centaurea, candytuft and poppy succeed best if sown where they are to remain and the same applies to convolvulus. These varieties, being of the tap-rooted nature, are somewhat hard to transplant.

Mignonette succeeds best in a semi-shaded position. Once it comes into flower, be sure and keep picking, or it will run to seed and lose its usefulness.

As soon as the seedlings are large enough, transplant into larger pots or boxes, one inch apart each way, and when the weather permits (usually about May 24th) plant outside in the open ground.

Seed can also be sown out-of-doors when danger from frost is over. The soil should be well pulverized and the seed covered lightly. Thin out to one foot apart as soon as the plants are large enough to be handled, and cultivate often. Cultivation is half the battle. Water occasionally if the season be dry, but by more cultivation and less use of the hose, one will have better success. Most people use the hose too liberally.

*Extract from a paper read at a meeting of the Toronto Horticultural Society.

The lawn should be mowed often to get a body in the turf.

For use in a small garden, it is not necessary to have a great stock of tools. Have a good spading fork and a spade. Three other important tools are a rake, a hoe and a trowel.

Planning and Planting a Water Garden

J. McPherson Ross, Toronto

THE cultivation of aquatic plants is a delightful and interesting diversion from ordinary ornamental gardening. It is quite a novelty to many people whose experience with aquatics has been confined mainly to gazing over some marshy expanse filled with bulrushes or cat-tails, the banks fringed with arrowhead, wild rice and duckweed, or to gathering pond lilies (*Nymphœa odorata*), or perhaps they have seen ponds filled with lilies at some public institute, without even dreaming of growing any themselves.

START WITH A TUB

The cultivation of this class of plants is simple and inexpensive. Beginners can start in a modest way by taking a discarded tub; a barrel sawn in halves would answer though not so convenient to handle as a tub. Half fill this receptacle with rich garden soil and imbed your root of water lily of whatever variety that you may procure. Fill the balance of the tub carefully with rain water and set it upon some bricks or stones. An appropriate place for it would be on a corner of a rockery. Some duckweed will keep the water fresh or a few minnows taken from a nearby creek. Be careful to fill in more water as it evaporates, and your labors will be rewarded by the flowers of the lily; that is, the *Nymphœa odorata*. These flowers open and bloom for three successive mornings when they sink below the surface to ripen their seeds. The plant is quite a free bloomer and remains in flower from June to September.

Roots of this species and of the nelumbos may be procured from neighboring ponds or bays, also roots of the cattail (*Typha patifolia*), marsh marigold (*Caltha palustris*), Indian rice (*Zizania aquatica*), umbrella plant (*Cyperus*), and water hyacinth. The beginner should not start with too many kinds.

When danger of frost appears let the water dry down to the soil and take the tub and set away in a cool, dark place, cold enough not to freeze, and the plants will keep well through the winter.

A friend of mine succeeds admirably with a tub of aquatic plants which he sinks into the ground in a corner of his garden where there is no danger of anyone stepping into it inadvertently. Here he has a semi-circular piece of rockery in which he grows quite a variety of flowers and about four feet from the bottom margin of his rockery, he grows his lilies.

A Water Garden that Was Made and Planted Three Years Ago
At "Altadore," Woodstock, Ontario—A. H. Ewing, Chief Gardener.

USE OF CONCRETE BASIN

For those who have not convenient ponds and wish to grow more lilies in variety than the limits of a tub will afford them, it will be necessary to have a basin scooped out deep enough for the water and soil. This basin must be concreted to retain the water and should be arranged so as to drain off the water in winter.

STARTING THE SEEDS

The tender lilies (of whatever species) can be started in pots and small tubs in the greenhouse and placed in the pond when summer weather is assured or, if seeds are procured, they may be started in shallow pans of water or rolled in balls of clay and dropped in the pond or a sluggish stream. This method applies to the nymphæas of all sorts and nelumbos.

The seeds of some of the nelumbos are very hard and need to be carefully filed or bored before planting. The nelumbos are valuable and desirable plants and suitable for tub culture. The new kinds are usually expensive. The hardy nymphæas are to be purchased quite cheaply and in a great variety of beautiful colors. There is quite a variety of other plants suitable for cultivation in large ponds or fountains also in aquariums. They may be purchased from seedsmen.

Annuals in the Hotbed

W. H. C. Nicholson, St. Catharines, Ont.

To grow asters, stocks and other annuals, by starting them in a hotbed, I first get shallow trays three inches deep which I fill level with rich, screened soil. I place the trays in the stove oven and heat the soil hot, so that the soil cannot be held in the hand, then let it cool off before planting the seed. Heating the soil kills all grubs and weed seeds. I sow the seed on top of the soil, thinly, then shake a thin coat of soil over them and press down firmly. I moisten the soil before I sow the seed. As soon as four leaves appear, I transplant into other trays, three inches apart. When about three inches high, I transplant again into strawberry boxes, four in a box. As soon as all danger of frost is over, I set them out in the bed where they are to stay. In this way I have sturdy plants and I never have one to miss. I follow this method only for early stocks and asters.

I do not agree with Mr. Norman of Elmira, Ont., (see March issue of THE CANADIAN HORTICULTURIST) in regard to watering asters unless his soil is different to mine. My soil being a light sandy soil and asters being shallow-rooted plants, I have to soak them every other day, or they will wilt down. After my asters are planted, I go through them both ways two or three times a week and keep down the weeds and also keep a dust mulch around them all the time. (I have a Buco hand cultivator, which is the best garden tool that I ever handled). When I cannot get through them any more with the cultivator, the plants shade the soil sufficiently to keep the soil moist and cool so that they do not need so much water. I quite agree with Mr. Norman in regard to saving your own seed, which I always try to do unless I wish a change of seed.

Be sure and attend to the ventilation of the hotbed.

Roses

A. H. Ewing, Woodstock, Ontario

THE roses in the accompanying illustion were planted three years ago and came from Dickson's, of Belfast. They are mostly budded on the seedling briar but some on the Manetti stock. Very few have had to be replaced. Her Majesty grew very vigorously the first year and gave a few beautiful blooms, but the three plants have since all died. Other kinds—hybrid tea and hybrid perpetual, including Frau Carl Druschki—have done very well, last year (1908) being the best year so far.

The bed in which they are planted was dug out to a depth of about two feet and filled in with good heavy clay loam with plenty of old barnyard manure and some coarse bone meal. It has had heavy coats of manure spread over late

A Bed of Roses at "Altadore," Woodstock, Ontario

in every fall since, which has been left on the surface during the next summer. By May or June, the manure is quite friable and the bed can be kept quite tidy and not at all unsightly or unpleasant. My experience in this place is that roses do better that way, producing stronger growth and better and more bloom. This bed is in the full sun and fortunately close to a hydrant where it can easily get frequent strong hosings. Insecticides have never been used on it.

As a winter protection, brush—evergreens and otherwise—has been put between and over the bushes, bending them down. In former years, when the winters have been much colder than this last one, this covering has answered the purpose well, but this spring on taking off the brush I noticed that the growth of the roses was black much farther down than usual. However, I do not anticipate that any real harm has been done as the weak wood is always cut out and the strong wood cut down to two, three or four eyes at the most.

Whilst on the subject of roses, let me recommend *Rosa rugosa* as a shrub for everybody's garden, large or small (there are two or three back of the rose bed illustrated, one only being visible). It makes a beautiful well-shaped bush, is in flower nearly the whole summer, and is free from insect attacks. The bright red haws are also very pretty in the fall and early winter.

The Gladiolus: Its Care and Usefulness

James E. Orr, Tempo, Ontario

PLANT gladiolus bulbs or corms in the warm earth the first of May, placing them in a trench six inches deep where they will be exposed to plenty of sun, rain and others of nature's benefactors. Ten inches apart is the proper distance. Cover over firmly and keep well hoed and weeded, which is not a difficult matter to do, as they will soon shoot up fast growing spikes, which are easily distinguished from weeds.

For many years I have opened two furrows with the plow and here placed the bulbs and, with little care, have gathered in July, August, September and October armsful of bloom, gorgeous in color, lasting in endurance, cleanest of all flowers, treasured by the sick and admired by everybody. Every year I add a few of the newer sorts to my collection, so that new interest is added to "Gladiolus Avenue" during the blooming sea-

The bulbs of the gladiolus increase rapidly. On an average they will double yearly, so that a new beginner soon has a supply on hand. A few newer varieties may be added as one's fancy dictates. In November, the bulbs should be harvested and left exposed to the sun until somewhat dried, then stored beyond frost for the winter.

Gladioli are the only things that grow in the vegetable kingdom, that I know of, that have not got an enemy in some fly, bug or worm to destroy them, they alone appearing to grow unharmed by anything.

The gladiolus should be extensively grown. No flower as easily managed will repay so abundantly in blooms. Among all the flowers none is so appropriate for the sick room. Their bright and cheerful colors help wonderfully to refresh the wearied invalid, and as the gladiolus has no perfume they never become oppressive to the most sensitive as many fragrant flowers do.

The bloom on a spike of gladiolus never becomes detached, and so does not litter up the most expensive carpet, as many other flowers when in bouquets do.

If spikes of the gladiolus are cut when the lower blooms are opening, all the upper ones will come to perfection. They will remain in bloom longer than any other summer flowers,—three weeks or more, and still they are presentable, only growing a trifle lighter in color as they remain longer indoors.

In making bouquets let each spike be fully seen. Use some light growing foliage at the bottom of the bouquet, as it adds to the appearance, and harmonizes nicely with the brighter colors. Such a bouquet will produce a smile on the most careless face, and sparkle the eye of the dullest observer, and bring a "thank you" from the most callous soul.

Trouble with Callas

My calla leaves are withering at the tips. The plants are potted in good soil, and get plenty of moisture. They are potted in six and seven-inch pots; were bulbs last fall.—B. K. R., Berlin, Ont.

The dry atmosphere of the house or gas fumes is probably the cause of the calla leaves withering at the tips. The best preventive is to sponge the leaves with tepid water occasionally, about once a week. Keep the roots well moistened, but not soddened. If, as you say, they are in good soil, the dry atmosphere of the house or gas fumes is in all probability the cause of the trouble, and sponging with water will prevent this to a certain extent.

Watch the weeds or they will beat you.

The Long Cucumber in the Cold Greenhouse

W. H. Edwards, Brockville, Ontario

FOR years past I have been growing the long cucumber in a cold greenhouse after the geraniums and other bedding plants have been cleared out. The plants are not grown for commercial purposes but to supply the home table. The method of growing, however, may be interesting to the commercial grower as well.

The *modus operandi* is one of the most simple character. The house used was erected to give room for spring stock, sales of which generally commence about the first or second week in May, so that some room is obtained on the benches by, say, May 24th. The seed is sown the third week in April in a cool house (lowest night temperature forty-five degrees) in ordinary berry boxes, four or five seeds in a box, filled with a material composed of about two-thirds of decayed manure (the bottom of last season's hot bed preferred) and one-third of ordinary garden soil. The boxes are thoroughly watered, covered with glass to prevent evaporation, and kept dark till the first break is apparent. The boxes are uncovered, placed on a shelf close to the glass, kept moderately wet and sprayed regularly on bright days.

By the second week in May the plants ought to have the rough leaf well developed. The boxes are gone over and all excepting the strongest plant in each pulled up, and the boxes replaced as close to the glass as possible to await convenience for setting out. It should be remembered that the glass has received the usual summer clouding and the house in which the plants are grown is kept lightly shaded all the time the plants occupy it.

The hills are prepared in the following manner. Four pieces of rough board (anything will do that will hold a nail), three feet long, ten inches wide, are nailed together, making a bottomless box. This is set four feet apart on the empty spaces on the bench, on the east or north side of the house. A little material, similar to that used in the seed boxes, is placed on the bench and three of the boxes (now containing one plant each) are placed close together, and more of the material is added so as to quite bury the three boxes, and watered.

In about a week, the fine roots will show through the soil and then a good liberal shovelful of the same kind is added, and this repeated about every ten days throughout the growing season, or in all about a wheelbarrowful. This soil after the cucumbers are over will be very useful for various purposes.

After the plants have commenced to grow, a strong wire is pushed into the soil and fastened to the sash bar, one wire to each plant. The plant is trained up this till it reaches the glass, say, three feet from the bench, and is then stopped by nipping. In a few days the plants will send out strong lateral shoots. The best of these are selected and carried up to the wires suspended from the roof, and kept regularly tied with raffia but not tightly; but no more pinching is done. The plants are watered daily (make sure the water reaches the bottom of the hill) and sprayed twice daily in bright weather getting well under the leaves. The squash bug is the only thing that I have known to injure the plants, and that only in its early stages. The plants generally commence to bear in about five weeks from the time of planting, and continue to do so until fall.

The kind grown is a cross between the common Long Green American variety and Rollinson's Telegraph, re-crossed with Lion House, a very fine English variety. Last year some of the fruits measured twenty-six inches in length, good and solid, of fine flavor, free from all bitterness, almost seedless, and will keep a long time after being cut. The plants require no fertilization except the natural.

Greenhouse-Grown Cucumbers

Other kinds that I have been successful with are Tender and True, Telegraph, Blue Gown, Cardiff Castle and Lion House. From the time the plants are planted out on the benches, they have no artificial heat but all the ventilation possible, avoiding strong draughts.

Forcing Green Onions

Wm. Iler, Berlin, Ont.

The old method of forcing bulb onions for bunching is a very uncertain way, and does not prove at all profitable compared with the new method. Plant winter onions or Egyptian tree onions in the spring or, better still, immediately after ripening in August, in drills one foot apart in well prepared soil. Make the drill with a marker or other convenient tool. I use a hand cultivator putting the right and left plows close together to open the drill and reversing them to cover the onions. Drop the onions an inch or two apart just as you would beans or corn and cover an inch or two deep. Cultivate as other onions during the summer.

Before freezing weather dig what is wanted and store in a trench or other convenient place. Cover sufficiently to keep out severe frost. To force, plant as closely together as they will stand on the bench, and in three or four weeks they will be fit to bunch. To have a succession, plant every two weeks during the winter. I have tried this method with good results and would recommend it to any person that forces onions.

Fertilizers for Vegetables

At a meeting of the Toronto branch of the Ontario Vegetable Growers' Association, held in March, the address on fertilizers as related to vegetable growing, delivered by Professor Gamble, was very interesting. In it, he pointed out the value of the different fertilizers to the different kinds of soil, and dealt strongly with the use of barnyard manure. "Barnyard manure," said the speaker, "is the best general fertilizer known. It makes organic matter for the soil and improves its mechanical condition. Barnyard manure contains all the elements necessary to enrich the soil. In a ton of manure there are from 10 to 15 pounds of nitrogen; 5 to 9 pounds of phosphoric acid, and 10 to 18 pounds of potash." The speaker said that land used for vegetable growing required more fertilizing than that used for raising grain. In this connection, he pointed out that in one year, a yield of 30 bushels of wheat per acre would take from the soil 34 pounds of nitrogen, 14.2 pounds of phosphoric acid, and 9.3 pounds of potash. A yield of 15 to 30 tons of cabbage per acre, on the other hand, would take from the soil in one year, 100 to 200 pounds of nitrogen, 35 to 70 pounds of phosphoric acid, and 135 to 270 pounds of potash. A crop of potatoes, of from 100 to 200 bushels per acre, would take from the soil 10½ to 33 pounds of nitrogen; 10 to 20 pounds of phosphoric acid, and 31 to 62 pounds of potash. A crop of tomatoes, 5 to 10 tons per acre, takes from 16 to 32 pounds of nitrogen, 10 to 20 pounds of phosphoric acid, and 27 to 54 pounds of potash. This shows the need of fertilizers. The speaker pointed out that the nitrogen in barnyard manure is not as available as that in some of the so-called chemical fertilizers. It is slower in its action, because the nitrogen in farm yard manure must undergo certain changes before it becomes soluble. These changes take place more rapidly in a warm soil, and, as a result, the early crop taken from the land the year the manure is applied will not be as large as a late crop, (e. g., early and late cab-

bages). If manure is put on the year previous crop year, the plants will get a much earlier start, and a better crop will result, but there is danger of some loss through leaching.

"If large quantities of nitrate of soda are used," said the professor, "there is a danger of the soil becoming sticky. As a means of counteracting this, I should advise the use of acid phosphate. Superphosphate is recommended for all soils except acid soils. In soils of this nature, the Thomas phosphate is recommended."

The speaker advocated the use of potash for all crops. Muriate of potash, however, should not be used for potatoes, beets or tobacco. Chlorine prevents the sugar in the beets from crystallizing and makes potatoes more waxy. Use the sulphate of potash.

Anthracnose of Beans

Prof. W. Lochhead, Macdonald College, Que.

Wherever beans are grown a disease called "Anthracnose" usually appears as large dark brown spots on the pods. Occasionally the damage is considerable, on account of the injury to the seeds within the pods, and the rapid spread of the disesase to healthy plants.

The cause of the disease is a fungus which lives in the tissues of the bean and sends out slender threads among the cells for the purpose of getting food for its own growth. It also produces spores on the surface of the "spot", by means of which the disease spreads from plant to plant during the growing season. This fungus winters over in the bean seed. This fact accounts for the early appearance of the disease on the stems and leaves of young seedlings which are often killed. From the leaves and stems of the seedling plants the fungus threads make their way to the large leaves and to the pods.

For many years the only treatment consisted in spraying the plants at intervals with Bordeaux mixture. It was admitted, however, that this treatment was unsatisfactory, for the disease appeared in spite of careful spraying. Later it was thought that spraying of the seeds before planting, with formalin solution or other fungicide, would be effective in preventing this disease, but this treatment also was not successful.

Later still several growers hand-picked the beans that showed no signs of "spot" for planting, hoping thereby to get plants free from disease, but this method like the others did not keep away the Anthracnose.

As a result of these failures, and of a microscopical study of diseased pods and seeds, it was concluded that diseased pods contained diseased beans, whether the disease was visible or not, and that the fungus rested within the seed at time of planting. Thereupon, experiments were conducted at Cornell University by Prof. Whetzel to test if beans taken from clean pods would develop healthy plants. So far as the experiments have gone, very satisfactory results have been secured, but it is necessary to spray with Bordeaux during the season to prevent infection from spores blown into the garden or field from adjoining infected areas.

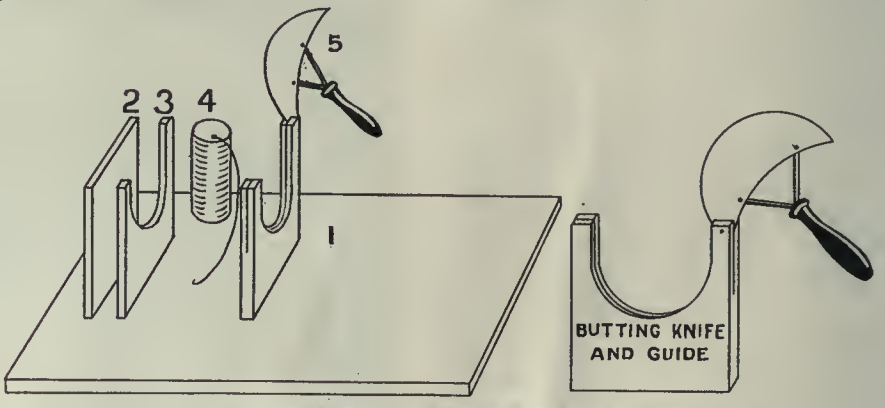
The best method, therefore, of growing beans free from Anthracnose is to select the seed beans from pods that show no signs of disease, and to spray with Bordeaux at intervals during the growing season.

How to Grow Spinach

One of the most popular greens for table use in spring and early summer is spinach. It is easily grown and should be found in every farm garden. The seed may be sown in hotbeds or cold frames early in spring or outdoors as soon as the ground can be worked. It is also a profitable crop to grow for market. The earliest spinach of all may be had by sowing the seed in the fall. A market gardener near Peterboro, Mr. Charles Kitney, who grows about half an acre of this crop each year, and who recently called on THE CANADIAN HORTICULTURIST, gives his experience with spinach as follows:

"I sow the seed broadcast about the last week in August. The best variety is Large Flanders. The ground should be mulched with straw or coarse manure. This helps to protect the plants and to drain off the surface water. In spring it is not necessary to weed or cultivate this crop. It grows rapidly. The first lot for market usually is cut about the first of May. The crop will last about one month. Spring-sown spinach comes in when this is done and lasts until early cabbage. The early spinach sells from seventy-five cents to one dollar a bushel. The spring-sown crop brings less money but is more plentiful.

"To grow spinach successfully," concluded Mr. Kitney, "a suitable location must be chosen. It will grow best on the southern side of a hedge or fence where it will be protected. The snow should drift and lie on it. Spinach will stand about the same extremes of temperaturt as fall wheat."



An Asparagus Buncher That May Be Made Easily at Home

This illustrates a handy device. Both hands may be used to arrange the Asparagus quickly. Any sized bunch may be tied. The cutting knife never has to be looked for and the twine always is at hand. The diagram was furnished by Mr. W. J. Justice, Barrie, Ont., who describes it as follows: 1. Base board, 1¼ inches thick, 14 x 18 inches square. 2. Head board or header, ¼ inch thick, 5 x 7 inches square. 3. Receiver, same size as header, hollowed well to hold Asparagus. 4. Twine holder, (empty baking powder can) fastened to base by screw through bottom. 5. Butting knife, (second-hand hash knife, well sharpened). 6. Butting knife, guide and receiver, 1 inch thick, 6 by 7 inches, with slot ripped to receive and guide butting knife. Butting knife is placed 6 inches from header. Nos. 2, 3 and 6 are mortised into base board. Buncher may be placed on table or bench when in use and hung on wall when not.

Separating Seed from Tomatoes

A. McMeans, Ontario Agricultural College

The usual method of separating seeds from the pulp of tomatoes, where good sized or large quantities are to be done, is to place the tomatoes in a water-tight barrel and cover them with water. In a few days, it will ferment and the pulp will come to the top, and the seeds go to the bottom. If it is stirred thoroughly, it will assist materially in separating the seeds.

Some growers prefer to squeeze the seeds and seed pulp in the barrel, throwing away the skin and outside flesh of the tomato. This seems a desirable way as, in washing the seed after the separation has been made, the seed pulp will all pass through the screen. The screen for washing the seed can be made from ordinary window wire screen, by making a box with sides, four or five inches high, and using the wire for the bottom. If you have a hose and force pump or other water supply, place the pulp and seeds in the screen, use the hose, and it will wash the seeds thoroughly clean. After cleaning, they should be dried promptly and thoroughly, and stood in a cool dry place.

A little nitrate of soda will stimulate vegetable crops into rapid growth in short time. It is available for absorption as soon as it comes in contact with the roots.

While sandy soils produce the earliest and smoothest vegetables, and are easily tilled, they are extremely leachy and require liberal applications of manure to maintain fertility.

QUESTION AND ANSWER DEPARTMENT

Roses for Northern Ontario

What roses would you suggest for conservatory culture in this part of Ontario? In the list, include some good climbers.—E. R. W., Fort William, Ont.

Bush roses:—Bride, white; Kaiserina Augusta Victoria, ivory white; Killarney, silvery pink; Bridesmaid, rose pink; Richmond, crimson scarlet; General McArthur, crimson scarlet. The first four are tea or everblooming roses and the last two named are hybrid tea roses.

Climbing roses:—Marechal Neil, yellow; Gloire de Dijon, creamy yellow; Lamarque, very pale yellow, almost white; Chromatella (cloth of gold). The first two named are the best kinds of climbing roses for a conservatory. The two last named are very strong growers and suitable specially for budding other varieties on. Niphetos, a white bush variety, and other varieties succeed splendidly when budded on these roses.—Wm. Hunt, Ontario Agricultural College.

Lily of the Valley

What should be done for a bed of lily of the valley which has been neglected and has almost stopped blossoming?—H. R., Ontario Co., Ont.

If the bed of lily-of-the-valley mentioned is very much crowded, I should advise taking out, here and there all over the bed, clumps about six to eight inches in diameter, removing from one-third to half of the entire clump. Fill the spots from where the roots have been taken with good soil. Plant the clumps removed in another suitable position. Light soil and partially shaded position is best for lily-of-the-valley. This thinning out and transplanting is best done in August when the roots are resting. A good watering once or twice during the growth of the plants this spring with a solution of liquid cow manure would possibly help the plants temporarily. By removing a portion of the plants as mentioned, it does not risk the whole of the bed at one time.—Wm. Hunt, Ontario Agricultural College.

Starting Flowers in Hotbed

1. Can cinerarias, calceolarias, cyclamen and *Primula sinensis* be grown in a hotbed? 2. Do wallflowers come single in the perennial varieties? Should the buds be pinched off when they are beginning to bloom in the house?—Mrs. H. N., St. Catharines, Ont.

1. The plants mentioned could be grown in a hotbed, but it would be advisable to sow the seeds in flower pots sunk in the hotbed; for, as the seeds are very small, it is difficult to manage them in a bed. The seeds are sown on the surface of the soil in pots and merely pressed in. The pots should then be kept covered with blotting paper until the seeds germinate. Care should be taken in giving the bed good ventilation as soon as the seed germinates as the tiny plants are very delicate. If the seedlings are started in the spring they may be transplanted to pots later on and kept in a cold frame all summer and should be in good condition for blooming in autumn or early winter. If the plants are started in summer they can be brought on so that there will be good strong plants to bring into the house by winter, but these plants would not bloom till towards spring.

2. Flowers come both single and double in the perennials varieties. It is not necessary to nip the buds when they are beginning to bloom if the plants are well grown.—W. T. Macoun, Central Experimental Farm, Ottawa.

Heating a Greenhouse

What would be the best method of heating a greenhouse sixty by twenty feet which has a bench down the middle and one on each side? To obtain the best results, should the pipes be placed under the benches or along side of the walls? Should hot water or steam be used? What size of pipe would be the best? I want to grow a general collection of greenhouse plants and to propagate bedding plants from seeds and cuttings in the same house.—A. S., Orillia, Ont.

Estimate the area of glass; count side walls of wood as one-third or one-half glass. For steam in the neighborhood of Orillia for rose temperature, allow heating surface equal to one linear foot of one and a quarter-inch pipe to two square feet of glass; for carnations, three-quarters of that amount; for violets, one-half of that amount.

For hot water, substitute two inch pipe for one and a quarter-inch and use same proportion, giving a circulating head from highest point above the boiler from which the water commences to cool, to the surface of the grate, of six feet for a run of 100 feet and return. Steam is best for long houses. Water may be best for small houses not over 100 feet long, but that is a question.

Heating pipes should be both on the walls and around the benches and proportionately distributed with the glass to be heated. This is a very important point to be observed, as much of the success in growing depends on the proper distribution of the heating pipes. One-inch steam pipe is all right for houses up to, say, 300 feet in length, but for longer houses use one and a quarter-inch pipe up to, say, 600 feet in length. There should be either a walk between the side benches and the walls or an open space of not less than four to six inches; the walk is preferred.

The proper temperature to be carried for different plants or flowers, or what can be successfully grown in the same temperature is a question for gardeners to answer. It would be a difficult matter to give in full the best method of heating a greenhouse unless the individual conditions and requirements are known and it will well repay one requiring to heat a greenhouse, who does not understand it personally, to engage some one who does to advise him in the matter. The subject as to the best way to heat a greenhouse has been pretty well discussed already in the trade papers but what may have been considered correct yesterday may in the more recent experiences be all wrong to-day.—R. W. King, Toronto. Ont.

Cellar-wintered Plants

W. Norman, Elmira, Ont.

As the days of spring become warmer, we will be bringing our plants up from the cellar. At this time, considerable care is necessary; for, as they have been enjoying a long period of rest, they are comparatively dormant. Place them in a north or east window for a start and water very sparingly for a time or the soil will become sour and the roots rot. Do not re-pot until growth starts; in fact, it is quite unnecessary to do so at all if you use the commercial fertilizers procurable at all florists for the purpose.

Do not cut down or trim your plants until new leaves begin to form, otherwise they will start to rot from the top. Try the following treatment if you wish to have strong sturdy plants that will give a wealth of bloom: Get some good bones, smash these with a hammer, and put a layer in the bottom of your pots. This will give first class drainage, and also give all the fertilizer necessary for a year or two.

When vigorous growth has once started, move to the sunny windows of your house. Spray the leaves occasionally, and when necesssary to water immerse in a pail until the water covers the soil to the depth of an inch or two. Leave them in this till all bubbling ceases. The soil will then be thoroughly soaked to the centre, and the plant will derive much more benefit than by many waterings given in the old way from the top of the pot.

The Canadian Horticulturist

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The Only Horticultural Magazine in the Dominion

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Since the subscription price of The Canadian Horticulturist was reduced from $1.00 to 60 cents a year, the circulation has grown rapidly. The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with Dec., 1908. The figures given are exclusive of samples and spoiled copies, and of papers sent to advertisers. Some months, including the sample copies, from 10,000 to 12,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruit, flowers or vegetables.

January, 1908	7,650	January, 1909	9,456
February, 1908	7,824	February, 1909	9,310
March, 1908	8,056	March, 1909	9,405
April, 1908	8,250	April, 1909	9,482
May, 1908	8,573		
June, 1908	8,840		
July, 1908	9,015		
August, 1908	9,070		
September, 1908	9,121		
October, 1908	9,215		
November, 1908	9,323		
December, 1908	9,400		
Total for the year	104,337		

Average each issue in 1907, 6,627
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(Increased circulation in one year 2,068)

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We want the readers of The Canadian Horticulturist to feel that they can deal with our advertisers with our assurance of the advertisers' reliability. We try to admit to our columns only the most reliable advertisers. Should any subscriber, therefore, have good cause to be dissatisfied with the treatment he receives from any of our advertisers, we will look into the matter and investigate the circumstances fully. Should we find reason, even in the slightest degree, we will discontinue immediately the publication of their advertisements in The Horticulturist. Should the circumstances warrant, we will expose them through the columns of the paper. Thus, we will not only protect our readers, but our reputable advertisers as well. All that is necessary to entitle you to the benefits of this Protective Policy is that you include in all your letters to advertisers the words, "I saw your ad. in The Canadian Horticulturist." Complaints should be made to us as soon as possible after reason for dissatisfaction has been found.

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EDITORIAL

IMPERIAL TRAINING IN HORTICULTURE

A recent issue of *The Gardeners' Chronicle*, London, England, has an able editorial on "Imperial Training in Horticulture." It advocates the establishment in England of an Imperial Institute of Horticulture at which men, who intend to emigrate to one or other part of the Empire in order to till the soil, may be trained in the science and practise of horticulture. It points out that "it would be a good thing if the men going out from these shores to grow fruit in British Columbia, rubber in Malays, or tea in Ceylon, were men trained in the general, universal principles of horticulture, and not men trained or untrained, selected haphazard by the careless hand of chance." Again: "It would be well for the Empire if the home country were engaged in preparing and sending out year by year colonists who had a knowledge of the methods of horticulture already implanted in them." While this knowledge may not be sufficient to cope with the diverse conditions which the emigrant is likely to encounter in the colonies, it is contended that it would be of practical value, in that the successful horticulturist knows, consciously or unconsciously, the ideal conditions for certain plants, and proceeds sagaciously to provide the closest approximation to those conditions. "He learns by experience to control, in as large a measure as is humanly possible, the conditions under which his plants are growing." The editorial suggests also that an Imperial Institute of Horticulture would not only train men to go abroad and train men for home horticulture, but also it would attract men from the colonies themselves, men who wish to learn the latest word of horticultural wisdom.

In most respects, the proposal of *The Gardeners' Chronicle* is an excellent one. Among our leading horticulturists can be named scores of men who came from the British Isles, men who were trained at Kew and elsewhere in the old land and who have become in Canada authorities on horticulture in one or more of its branches. These men have done much to advance the horticultural interests of our great Dominion. On the other hand, many emigrants to Canada have no knowledge of horticulture whatever. Many of them attempt the practice of fruit growing, floriculture or vegetable gardening and fail. Not only because of their lack of knowledge of the principles of horticulture are they unsuccessful, but also on account of the changed conditions of climate and custom. A course of training at home would mean much to men like these when abroad. It would aid them in overcoming the special difficulties that would confront them in a new country.

There is another class of Old Country emigrants to Canada that apparently would be benefitted by some "coaching" in the study of climates and how those of the different parts of Canada differ from that of Great Britain. In this class we refer to men who have learned the art of horticulture at home, but who, in this country, fail to realize or to recognize the fact that all "home" methods and practices will not be successful here. They tell of their skill and success in the old land and they attempt to operate similarly here but they do not "make good." Before they are in Canada two months they are writing articles for the agricultural press, often well prepared and written, but which must be rejected because of their utter impracticability for performance under Canadian conditions.

Horticulturists from Great Britain and Ireland and men who purpose becoming horticulturists are welcome immigrants. Had they the advantage of training in an Imperial Institute of Horticulture, such as is proposed, they would be doubly welcome. There is room for such men in Canada and the other colonies and we want them to succeed. To make the proposition more certain, however, we would suggest that one horticultural expert from each of the leading colonies be appointed to the staff of the proposed Imperial Institute. In addition to the general course of study, these men could teach horticulturally-inclined emigrants those facts that are just as important as principles, the actual condition of things and the climate with which they will have to contend in the country of their choice.

UNIFORM JUDGING OF FRUITS

There is a difference of opinion in regard to the manner in which fruits should be judged at our fairs and exhibitions. A number of letters have been received by THE CANADIAN HORTICULTURIST, expressing a desire to have some uniform system adopted. While attending the annual meetings of the provincial fruit growers' associations in the maritime provinces during the past winter, Mr. W .T. Macoun suggested that a circular be issued that would give some general information to the judge as to what maritime fruit growers consider to be the important points in judging, this circular to be available to the exhibitor and to the judges. Committees were appointed for this purpose.

This question of uniformity in judging is well worth discussion. It would be desirable to have, not only a uniform system adopted in the maritime provinces, but one that would be equally acceptable in Quebec, Ontario, British Columbia and the other provinces. The provinces should co-operate in the movement. Each province should adopt a plan and then arrange for a national understanding. This is one of the many national questions that could be discussed at another Dominion Fruit Conference.

FRUIT PEST LEGISLATION

It is to be regretted that the Ontario Legislature saw fit to shelve for another year the request of the Ontario Fruit Growers' Association that certain other injurious orchard pests and diseases be incorporated in the Act to Prevent the Spread of the San Jose Scale. The codling moth, crown gall and other orchard troubles should be controlled by the law. The codling moth played havoc with many orchards last year. The damage from these pests increases as the years go by and will become a permanent menace to fruit-growing until their control, so far as is practicable, is made compulsory.

We are informed that the Department of Agriculture intends to distribute copies of the propsoed Act throughout the province for consideration by Ontario fruit growers. and that unless objection is raised to it the Act will be passed at the next session. Fruit growers who do not receive a copy may obtain one by applying to Mr. P. W. Hodgetts, Parliament Buildings, Toronto. The proposed Act should have the support of all persons interested in the advancement of the fruit industry of Ontario.

Tell your friends about our big premium this month. They may take advantage of it even if they are not subscribers to THE CANADIAN HORTICULTURIST.

The Tussock Moth in Orchards

Prof. W. Lochhead, Macdonald College

AT the last meeting of the Ontario Fruit Growers' Association in Toronto several fruit growers made enquiries about the habits of the tussock moth which had made its appearance in considerable numbers in some orchards during the past season. While this pest usually confines its ravages to shade trees in towns and cities, occasionally it does considerable damage to the foliage and the young fruits of apples and pears. As far back as 1871, Rev. Dr. Bethune reported the tussock moth as a serious enemy to apple trees, attacking both the leaves and the fruit.

A recent bulletin from the New York Agricultural Experiment Station, Geneva, (Bulletin 312, "The Tussock Moth in Orchards," by W. J. Schoene) gives a clear account of the life history and habits of this insect for the benefit of the orchardists of New York, where it had done much damage in 1908.

The life-history of the tussock moth is already fairly well known.(See the diagram.) The winter is passed in the egg state; the eggs hatch in the latter half of May; the caterpillars continue feeding for about a month; the pupa state lasts about two weeks; and the moths emerge in the latter part of July and early August to mate, and the females deposit their eggs in masses of 100-500 on the empty cocoons in a white foam-like substance. These egg-masses are quite conspicuous objects, and hence can be readily collected and destroyed.

The caterpillars are beautiful creatures, being adorned with two long black pencils of hairs at head end and one at the tail end. Four tufts or tussocks of whitish hairs ornament the back on the fore part of the body. The head and two small tubercles on the back are bright red, while along the back runs a broad velvety stripe.

The male pupa is smaller than the female pupa; and the male moth has brown wings with delicate gray markings, while the female moth is wingless and gray.

There is but one brood a year in Canada, but farther south there may be two or even three broods.

Among the natural enemies of the tussock moth are some of our native birds which feed upon the caterpillars in the younger stages, and parasitic insects such as Pimpla and Tachina.

The best measures for the control of this insect are: 1. To collect and destroy the conspicuous frothy egg-masses that are to be found attached to leaves and rubbish, by scraping them with a hoe from the trunks and branches.

2. When egg-mass collecting has been neglected the young caterpillars can be destroyed by arsenical sprays. When the caterpillars are nearing maturity, it is necessary to increase the amount of arsenic.

3. Tussock caterpillars have a habit of migrating from the tree upon which they have been feeding to neighboring trees to spin their cocoons. A band of cotton about the trunk, tied tightly about the middle so that it is loose above and below, acts as an efficient barrier.

Diagram Showing Life Cycle of Tussock Moth

The Columbia River Valley

Montford A. Kelly, Wilmer, British Columbia

THE continually increasing inclination among professional and business men of giving up their line of business in the large cities and towns and returning to some agricultural pursuit, has done much to stimulate the interesting and pleasant occupation of raising and growing of fruit. Many who would never have turned their minds and talents to these lines have been influenced by just such people to take up this class of work. Much benefit has been the result to the fruit growing industry as well as great profit to the grower himself.

At one time it was thought that certain parts of Ontario would never become good fruit growing districts but which have finally become the choicest and very best portions of that province for fruit to-day. This was also the verdict of most of the inhabitants of the Wilmer and Windermere district of the Columbia River Valley, in view of the fact that there were ranchers and neighbors, who had demonstrated the feasibility of this industry by successfully raising apples, plums, cherries and every variety of small fruits.

The Wilmer and Windermere district of British Columbia is at an elevation of 2,569 feet above sea level, with the wooded sides, bald peaks of many varying colors of the Rocky Mountains on the one side and the magnificent Selkirk Range of mountains on the other. The valley ranges from three to seven and, in some places, as wide as eight miles in width and near the center of the valley runs the picturesque Columbia River.

The clear and invigorating mountain air makes the valley an enjoyable place for either summer or winter tourists. The temperature seldom drops to more than 15 degrees below zero and the snow rarely exceeds from five to six inches in depth.

Ranching has been carried on most successfully for more than 20 years and the occasions of real necessity of putting up hay for cattle during that time have been few and far between. Cattle as well as horses safely range the whole of the winter months and come through looking healthy and fit.

The autumn season is long enough to allow for a thorough ripening of the wood in fruit trees and the mild winters permit of grafts being left in the ground all winter so that they may be dug in the spring and transplanted in a fresh and healthy condition.

The land of this district is of a rolling nature and of park-like appearance, for the most part clear of underbrush but scattered over with fir trees ranging from three to seven and eight inches at the butt. These trees, however, are very easily taken off the land and have been found to be more of an assistance than a disadvantage to the new settler.

As yet the fashionable prices are not obtained here as in West Kootenay but are within reach of all and the country is much more suitable for fruit growing than many districts more extensively advertised.

This difference in price is entirely due to the lack of good transportation facilities. It is 80 miles from the nearest railway station. This disadvantage has been the main reason for this district being so slow in coming to the front and becoming a popular fruit growing locality as no good markets for profitably disposing of the fruit were available to the grower. However, of late years so many have planted trees for their own use (in small numbers) and the ventures have proven so successful, that it has created an interest and desire for orchards that never before existed. The interest has become general and there are now a number of fairly large orchards bearing a firm and hardy fruit. Hundreds of trees are now being planted every year and it is only a question of a very few years before the Wilmer and Windermere district will be one of the very best apple, plum, cherry and small fruit growing districts in the province.

Realizing the future of this valley and the advantage of opening up a district so rich in mineral and agricultural as well as horticultural possibilities, the Kootenay Central Railway Company have obtained a charter for the construction of a railway from Golden, B. C., south to Cranbrook, B. C., and this road is now under course of construction. This line will open up the prairie and eastern markets to the rancher and fruit grower and thereby eliminate the greatest difficulty in the valley's endeavor to become one of the best fruit growing districts of British Columbia.

Advice To Fruit Exporters

J.S. Lark, Canadian Trade Commissioner, Australia

A representative of an English Fruit firm has visited Australia and in speaking of the export of fruit he says:

"I would advise packers to place their fruit in cold stores for at least four days before it goes into the hold of a ship, in order that the fruit may give off the carbonic acid gas which is generated in it. Then, when the fruit is placed in the cold storage chamber on the boat, it does not generate anything like the gas of the first few days in the cold store on land. If the fruit is put straight in to the ship's hold, the carbonic acid gas eats into it, and when it arrives at its destination it is 'spent' and lifeless. Last year, Australian pears and apples did not come to hand in good order, chiefly owing to the intensely hot weather at the time the fruit was packed, and because the greater portion of it was not placed in cold storage for a few days before being shipped."

This advice is not new and is not unknown in Canada, and it is possible that the Canadian Department of Agriculture has tested it. If not, it might be well for shippers of fruit from British Columbia to Australia to follow it, as the fruit from British Columbia is shipped in fairly warm weather, warmer than when the fruit is shipped from the eastern provinces to Great Britain, and has to meet much severer weather conditions than the eastern fruit experiences. Anything that would tend to preserve the flavor of the fruit would certainly be financially advantageous to the shippers.

NOTES FROM THE PROVINCES

British Columbia

W. J. Brandrith

The regular quarterly meeting of the British Columbia Fruit Growers' Association was held in Chilliwack on April 3. The attendance was large and a good deal of interest was manifested in the proceedings. After routine, Mr. W. J. Brandrith was unanimously elected delegate to the American Pomological Society's annual meeting. A resolution, calling for local inspection of fruit and orchards by the provincial board of horticulture, was also passed. The first secretary of the association, Mr. A. H. B. Magowan, was voted a life membership in view of his services at the inception of the association 20 years ago.

Mr. Tom Wilson read a paper on "Pollenization." President Puckle gave a short address on "Co-operation." Mr. J. C. Metcalfe, one of the old war horses of the association, gave an excellent address on "The Cultivation of Small Fruits." Mr. Maxwell Smith, Dominion Fruit Inspector, gave a rousing address on "The Commercial Aspect of Fruit Growing." The next quarterly meeting place was fixed for Kelowna and the October quarterly for Creston.

British Columbia Legislation

Edgar W. Dynes

The session of the British Columbia Legislature which closed a few weeks ago has been very fruitful of legislation benefitting the horticultural and agricultural interests of the province. Two very important measures were put through,—one known as the Fruit Depots Act, and the other, some very important amendments to the Water Clauses Act.

In respect of the latter the government sought to eliminate some of the existing abuses in the matter of water rights. It was found that many individuals had staked large quantities of water for speculative purposes and which they could not use. This had the effect of retarding the progress of districts where irrigation is absolutely necessary. To illustrate, in a certain district there might be 3,000 acres of land, arid or semi-arid, and wholly dependent on water from a certain creek. But, supposing that some enterprising individual, who owned not more than 1,000 acres of land, had located all the water in the creek. The other owners would either have to do without water or be at his mercy.

Under the new law, all this water becomes the common property of the land owners in the immediate vicinity who need this water. A man can no longer hold water for speculative purposes. The province has been divided into six districts for the purpose of the Act and in each district a commissioner will be appointed with full power to act in the matter of the adjustment of the water rights. It is a statesman-like piece of legislation and will be of immediate and untold benefit to the sections in the province where irrigation is necessary.

The Fruit Depots Act provides for aid to depots or stations to be established for the sorting, cooling and packing of fruit, and the government to assist the building of such in much the same manner as aid is granted to creameries and cheese factories. The Act gives power to the provincial board of horticulture to license depots or warehouses for the purpose named upon conditions wehreby the licensee is eligible to apply for a loan of not exceeding three-fifths of the value of the plant and not more than $3,000 in any one instance. The second clause of the Act provides that such license may be granted to anybody, corporation or association legally instituted to establish, maintain and operate a fruit depot, equipped with appliances for the sorting and colling of fruits and packing them for shipment. The application for license must be accompanied by proper plans and specifications including information as to the number of orchards tributary to the proposed depot.

The fourth clause of the Act provides that such license shall be subject to the conditions that the facilities of the depot shall be without discrimination and at uniform rates and charges to be open to the use of all members of any corporation or association so licensed and that all rates and charges made, taken and collected by the licensee, in, about and in connection with the depot, shall at all times be subject to the control and regulations of the provincial board of horticulture. The license is liable to cancellation for any breach of the Act, in which case all money loaned becomes immediately due and payable. The loan is secured by a first mortgage on the depot and lands connected therewith and interest is payable at the rate of five per cent. The immediate plans of the government are understood to include the erection of several of these depots at some of the more important fruit shipping points in the province.

Some concessions have been obtained from the railroad and express companies in the matter of shipping regulations. The minimum weight for carload shipments of fruit has been lowered from 30,000 to 24,000 pounds. It was represented by the growers at a meeting at Victoria that they could not compete with Ontario unless they were given the same rates to Winnipeg as the Ontario growers enjoyed but this was turned down. Mr. Lanigan, of the C. P. R., made the statement that he had personally canvassed all prominent fruit dealers in Winnipeg and said that he found the main reason why more British Columbia fruit was not marketed on the prairie was that so much second grade fruit was dumped in from Washington and Oregon at tempting prices. This being the case, he concluded that the reduction asked for in this instance would not be of any assistance.

From All Over Canada

Editor, THE CANADIAN HORTICULTURIST:—We take pleasure in again complimenting you on the general excellence of THE CANADIAN HORTICULTURIST, and more particularly on its merits as an advertising medium. From almost every part of this wide Dominion, between the Atlantic and Pacific, we receive enquiries as a result of our advertisement in THE CANADIAN HORTICULTURIST, to which most of the correspondents refer. Every succeeding year brings noticeably greater results, which proves that your paper is progressive in every sense of the word. We think a statement of these facts is due to you, believing that the success of your advertisers is equally encouraging to yourselves.—The Dominion Offices of the Potash Syndicate, B. Leslie Emslie, Manager, Toronto.

New Brunswick

A. E. McGinley.

The government of New Brunswick is preparing to devote special attention to advertising the advantages of this province in the way of general agriculture and small fruit culture with a view to repopulating the vacant farms and untenanted orchards of the province which, unhappily, are far too numerous. For this purpose, a special official will be appointed to the staff in the person of Mr. A. Duff-Miller, and it will be his duty to circulate literature and otherwise inform the members of Great Britain's farming community what advantages this province offers. Already there is a government agent in St. John who has a list of all farms for sale in the province and has done good work on a small scale. With the appointment of another official in England, who will work in conjuction with the St. John agent, the scope of the work will be very largely increased and good results are expected.

This season has been a particularly good one for the export of Canadian apples to Europe, via the port of St. John. The season will close about May 10, but already the returns show that 38,276 barrels and 3,730 boxes of apples have been sent forward. Most of these have come from Ontario points as the Ontario apple is more popular in the European market than the New Brunswick product. Nova Scotia apples which are also very popular in the Old Country, are principally shipped from Halifax. Facilities at St. John have been vastly improved by the erection here of a large cold storage plant which is expected to prove a great factor in the development of the trade.

Annapolis Valley West, N. S.

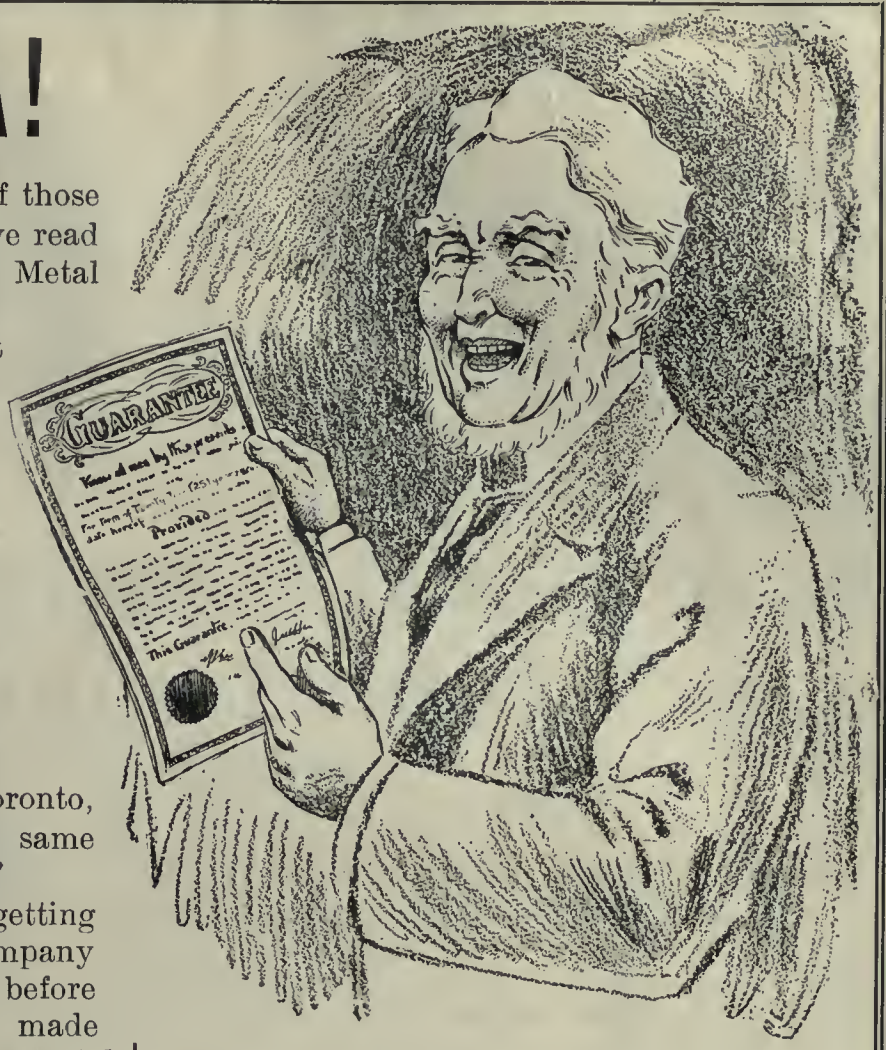
R. J. Messenger

The active part of marketing is about over for this year. A few apples are going to our local markets, *good* apples on the St. John or Halifax markets bringing as high as $4 and $5 a barrel. Everybody seems to be happy, the speculator because he has made in most cases enough on this year's operations to more than compensate for his losses last year and the producer is happy because he got his money without being asked for rebates. This reminds me of a case where a pious speculator last year asked for and obtained a rebate of $600 from a farmer. This year he bought the same farmer's apples when they were low, and after many strong hints generously (?) allowed the farmer a gift of $200, when he probably made enough to more than replace the $600.

Orchard work has fairly begun again. Pruning is about all done, except where some have left the work to be done in June. It is unfortunate that we see all kinds of mal-practice in this operation. Every farmer has his own ideas as to how, when and where to cut, and surely there must be some one system that approximates the best.

Early spring spraying is being practised

HA! HA! HA!



"Well, I'm blest! So this is one of those so-called metal roofing guarantees I've read about," laughs the Wise Man of Metal Town.

"It certainly is a good joke, for it doesn't really guarantee anything to anybody, and isn't legally binding. Ask your own lawyer and you'll find I'm right."

"Stripped of all its exceptions and provisions I don't see how anyone could be serious about it."

"I go by what I know has been done, not by what is promised. For instance, I know that 'Eastlake' Metallic shingles have been in use for twenty-five years right here in Toronto, where they're made, and that those same shingles are in perfect condition now."

"Just listen here a minute. I'm getting serious now. The Metallic Roofing Company began to make metallic shingles years before anyone else in Canada. They were made right when they were first made. The Metallic Roofing Company have been continually making new designs for ceilings and walls, fronts and cornices, but as for shingles they have never seen an improvement on the 'Eastlake' steel shingles which have been made, laid and proven for twenty-five years."

"I've noticed that most metal shingle manufacturers change their pattern so frequently that I'm led to believe they, themselves, haven't much confidence in their own goods. Yes, they even change the name to cover up some weakness in a previous product."

"I'm prejudiced, you say? Of course I'm prejudiced, but it's a prejudice founded on years of active use of the metallic goods made by The Metallic Roofing Company. It's an old man's prejudice based on a long experience."

"Write for booklet which tells more about 'Eastlake' Metallic Shingles. They are sure proof against fire, lightning, rust or weather in all climates. They are the easiest and quickest to put in place and the most durable when laid. If you send the measurement of any roof an accurate estimate of cost will be sent free."

—The Philosopher of Metal Town

"TWO OTHER PERSONS' SAY-SO'S"

The Metallic Roofing Co., Limited,
Toronto.

Simcoe, Ont., April 9th, 1908.

Dear Sirs,—"We have handled your 'Eastlake' Shingles for nearly a quarter of a century. They have been on the Court House, Free Library and other public buildings in this town for 18 years. We have used very large quantities during the past 25 years and they have always given first class satisfaction, and have never required any repairs."

(Signed) MADDEN BROS.,
Tinsmiths and Hardware Merchants.

The Metallic Roofing Co., Limited,
Toronto.

Lucknow, Ont., April 9th, 1908.

Dear Sirs:—"I take great pleasure in testifying to the good qualities of your 'Eastlake' Shingles. We put your painted shingles on our town hall here in 1885, 23 years ago, and although they have only been painted twice since that time they are in good condition yet. I consider the lock on the 'Eastlake' the very best, and believe that a roof covered with the galvanized 'Eastlake' will last for ever."

(Signed. THOS. LAWRENCE,
Hardware Merchant.

THE METALLIC ROOFING CO.
LIMITED

Toronto and Winnipeg

Agents Wanted in Some Sections. Write for details, mentioning this paper.

more this year than ever before. Some are using lime-sulphur and others proprietary preparations. The worst evil of the latter is that they cost much more and are generally not as effective. The weather was very cold up to April 13. Since then the buds have been swelling and grass becoming green. We have had very little rain this spring.

Annapolis Valley East, N. S.

Eunice Watts

There is a very great demand for nursery stock, of which there are not sufficient trees to supply the call. An interest is being taken in dwarf apple trees, and a few plantations of this form are being set out; these small trees are also being used as fillers, the advantages being that they come into bearing earlier than standard forms, are easier to spray, prune and gather, and more trees can be grown on the acre.

Much interest has been taken in lectures given by Mr. F. W. Chute who has just returnd from England where he inspected the apple markets of London and Liverpool. Mr. Chute described the methods of the auctioneers in the various salesrooms, where only ticket holders were allowed to enter; he also compared the English and Nova Scotian fruit growers, and came to the conclusion that people in the Old Country had many lessons to learn from us in spraying, especially if they wished to grow clean apples.

The orchardists of the Annapolis valley are very keen on starting co-operative fruit packing companies. They claim that if the farmers will work together, that there will be a saving of about 30 cents a barrel; the fruit will be packed uniformly, and English apple buyers might give a special commission.

Send notices of exhibitions and conventions for publication.

The Best Annuals

In commenting on the list of annuals recommended by Mr. Armandale at the meeting referred to on page 102, Mr. R. Cameron, park superintendent, Toronto, advised growing antirrhinums from cuttings as the blooms are then larger and better. Eschscholtzias must be grown from seed in the open, as they cannot be transplanted. He recommended the carnation poppy, sown at intorvals the first year; once sown, they reproduce themselves. He questioned the inclusion of verbenas, dianthus and sweet alyssum in a list of annuals, the first and last being perennials and the dianthus, a biennial.

Mr. Cameron also gave the meeting a list of 24 of his own selection as follows: 1, Asters. 2, Sweet peas. 3, *Linum grandiflorum rubrum*, a grand blooming plant, which grows one foot high, with red and scarlet flowers. It is not good for cutting. Sow it twice successively and in bunches. 4, Mignonette "Machet." 5, *Chrysanthemum modorum*, new, a pure white and blooms all season. Seed must be sown in a hot bed. 6, *Gaillardia Lorenziana* (double flowers. 7, Ten-week stocks. 8, *Torenia Fournieri*, (6 to 12 inches high). Good for pots, hanging baskets and windows. 9, *Celoria plumosa*. Sow indoors in tiny pots, and put in large box with sand between pots, which will hold moisture. Should be sown in March. Most delicate plants of these generally give the best bloom. 10, Sweet Scabiosa. 11, Antirrinum, yellow, crimson and pure white. Best blooms and earliest are from cuttings. 12, Nasturiums tall or dwarf. 13, *Lobelia tenuior*, (12 to 15 inches high). 14, *Phlox Drummondii*. 15, Candytuft, in colors. 16, Annual Larkspur, in colors, sown in open. 17, Corcopsis sown in open. 18 *Statice Suworowi* (lilac color), hardy. 19, Zinnias. 20, Salpiglossis (in colors), giant strain. In conjunction with this, sow seeds of *Asperula azureasetosa* in the fall as a border plant for edging and plant in the same row, a foot apart, *Torenia Fournieri*, the seeds of these to be sown early indoors. The asperula will be the first to bloom in the spring to be succeeded by the torenia. 21, Eschscholtzia (California Poppy). Cannot be transplanted. 22 *Centaurea cyanus*. 23, *Linaria bipartita*, violet purple, 12 to 15 inches high. There is also a beautiful white variety. 24, Verbena, which should not be really called an annual.

The following were recommended as climbers: Tall nasturiums, *Humulus Japonicus variegatus*, gourds, hyacinth bean, morning glory and ipomaeas.—G.

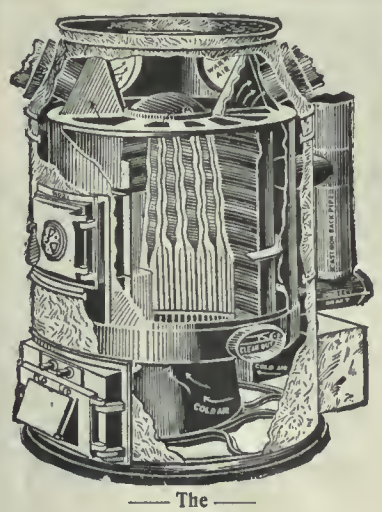
A Reader for Many Years

Among the readers of THE CANADIAN HORTICULTURIST who have been subscribers for many years is Mr. Charles James Fox, of South London, Ont. In a letter received from him recently, he states, "I became a subscriber to THE CANADIAN HORTICULTURIST in Mr. Beadles' time. As an amateur, I have always taken a great interest in the growing of vegetables and flowers. My love for flowers dates back to the year 1838. I came to Canada in 1856 and settled in Delaware, Ont." For many years Mr. Fox was the secretary and treasurer of the Delaware Township Agricultural Society. During that time he introduced among the farmers many new varieties of early and late potatoes.

Mr. Chas. Jas. Fox

"It is very pleasing to me," he writes, "to see the great improvement that has been made in THE CANADIAN HORTICULTURIST. I trust that in another year or two the list of subscribers will be more than double what it is now. I wish the publication every success.

About Dahlias.—For years, the show of H. P. Van Wagner's dahlias has been one of the features of local exhibitions. In order that lovers of this flower, who have not attended these exhibitions, might have an accurate description of the best and newer varieties, Mr. Van Wagner has made an arrangement with the largest commercial grower of dahlias in the United States, by which he is enabled to give their description and illustrations of the dahlias found best after being tested over a wide range of territory. In his catalogue will be found choice dahlias priced from 16 for $1 to the sensational "Jack Rose" at 75 cents a plant. A dahlia root should last a life-time, making it the most inexpensive of flowers.



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Early Wonder,--white and pink
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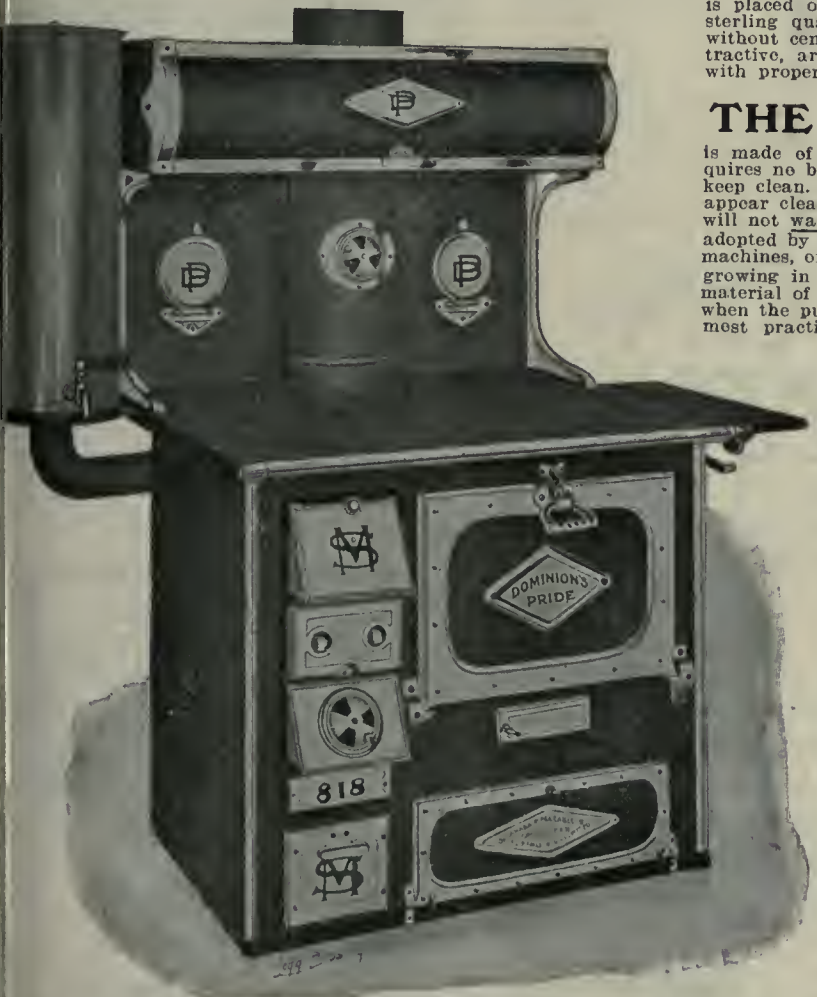

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"DOMINION PRIDE" Ranges are sold on the following Guarantee: If any casting prove defective in twelve months from date of purchase, we will furnish same free of charge. The above Guarantee is very broad, no "ifs" or "ands," and any casting that would have a flaw in it that we failed to see in the course of construction, such flaw would show long before the twelve months have transpired when fire is put in range.

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A Great Offer

Do you like reading? Do you like to save money? THE CANADIAN HORTICULTURIST has made arrangements whereby its readers can secure a complete farm and home library of the best kind of reading, and secure it at an exceptionally low price. You can secure three other leading publications in addition to THE CANADIAN HORTICULTURIST at little more than what you sometimes pay for a single publication. The four papers included in our special offer are as follows:

Farm and Dairy (formerly The Canadian Dairyman and Farming World), a weekly farm and dairy paper, including a strong household department that contains matters of special interest to the farm home.

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THE CANADIAN HORTICULTURIST, which is well known and which needs nothing to commend it to its readers.

These four Canadian papers may be secured for one year for the small sum of $2.00, by sending this amount to the publishers of THE CANADIAN HORTICULTURIST, Peterboro. A large advertisement giving fuller details appears elsewhere in this issue. When renewing your subscription, do not forget this offer.

Lake Erie Apples in England

Editor, THE CANADIAN HORTICULTURIST:—Since returning from a three months' visit to Great Britain I have read an article in a well-known agricultural paper in Western Ontario that referred very disparagingly to our Lake Erie apples. For this reason I write to defend Elgin county apples.

To refute the article referred to which coincides also with Chief McNeill's settled idea. I would like to give a history of my apple crop of 1908. Last September I packed 200 boxes, wrapped and tiered, of fall apples and shipped them with a car of barrelled apples to Liverpool. These went in refrigerator car and refrigerator chambers in boat all the way from St. Thomas.

My apples are packed in the orchard into orchard boxes, which were before evening piled in my store house where they remained for a day or so before I could get them sorted, wrapped in tissue and tiered in the shipping boxes. They were hauled by me 12 miles to St. Thomas on as hot a day as we had last September, on a broad, low-platform spring waggon, (size 7 ft x 14 ft.), three boxes deep, piled on their sides, the load covered with a sheet of heavy canvas. At St. Thomas, they were put at once into the refrigerator car, the icing charges being paid by our government. The barrelled apples in the same car, about 200 barrels, were put up by another shipper in the usual way. I was told afterwards by this shipper that my 200 boxes netted as much as his 200 barrels, both lots being sold by the same broker at the

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"Buco" Hand Cultivator does twice the work of Hoe in less time, less labor, trouble; more thoroughness. Digs deeply, extracting weeds by roots. Adjusted to any width for working around vegetables, etc. 4½ ft. hard-wood handle; thoroughly tempered best steel Teeth. Simple, durable; lasts a lifetime; saves its own price many times first season. Sold by Hardware and Seed Stores. If dealer cannot supply you, send regular price, $1.50, and "Buco" will be promptly sent you, express prepaid. Money refunded after 10 days trial if it is not satisfactory.

"Buco" Hand Cultivator.

Bailey-Underwood Company, Ltd.
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same time in Liverpool. You will remember that last September most of the apples picked and shipped landed in England in poor, wasty condition. These barrelled apples were no better than the usual shipments while my boxes landed in good condition and brought—King, 8s. 3d.; Ribston, 7s. 9d.; Fallawater, 7s. 6d.; Stark, 6s. 6d. (These Starks were too green.) This proves that papered apples in boxes will carry better than barrelled apples.

Now as to winter apples,—Baldwins, Greenings and Ben. Davis. These were packed and piled in my storehouse in boxes in the same way and sorted, wrapped and tiered in boxes several days afterwards and shipped in ordinary cars to St. John, N.B., and placed there in cold storage on dates Oct. 22, Nov. 5 and Nov. 9, '08. I went to St. John in the beginning of December and saw that cold storage filled with barrelled apples from cellar to roof, several floors, with about 40,000 barrels and a few boxes besides mine. The temperature was kept at about freezing point. I then went to Liverpool on the Empress of Ireland.

With the exception of a few boxes sold in London I sold my whole crop in Liverpool at auction by a well-known firm. They received as high as 8s. 6d for Baldwins, 7s. 3d. for R. I. Greenings and 7s. for Ben Davis a box. These apples were shipped from St. John in small lots on Jan. 14 and 28 and Feb. 19 and 26. The last of them were sold in Liverpool on March 24, all Baldwins, at 8s. 6d. a box.

These apples topped the market for same variety and opened up as good as those from anywhere else. My boxes contained 40 pounds of apples as against 140 to 150 pounds in Canadian barrels.

The only other apples selling at a higher price were the Oregon Newtowns. Most of the California and Oregon boxes were better packed than mine. I hope they will not be so next year for I shall endeavor to equal their packing.

The point I want to make here is that my Elgin apples reached that market in as good condition as any apples offered there for sale and brought as high a price as anything of the same variety sold there in March. They were sold in their original wrapping and package, as packed at my orchard and not repacked in the cold storage as is usual with barrelled apples.

This does not bear out Chief McNeill's contentions in regard to the inferiority of Lake Erie apples. I can emphatically back J. E. Johnson, of Simcoe, in his claim that there are no better apples raised anywhere in the world than right here on Lake Erie. We have high colored apples and the British prefer high color. We have as good flavor as anywhere and cold storage will keep our apples as good as those from anywhere else. I must therefore take exception to the article that appeared in that Western Ontario paper.

The Oregon Newtowns sold at 12s. a box and upwards for their larger sizes. We grow apples here fully equal to that apple but we have not delivered them to that market with the same care that the Oregon people do. It is up to our Ontario growers to pack and deliver their fruit to the British markets in as good condition as the Hood River growers do.

It will not do to pack equally as well and send there on consignment to be sold to the highest bidder. I have discovered a better plan than that. In that case, you have to accept what they choose to give but can not control the price. The better plan is to be there and set your price. In the next issue of THE CANADIAN HORTICULTUBIST I shall refer to this plan at further length.—J. A. Webster, Sparta, Ont.

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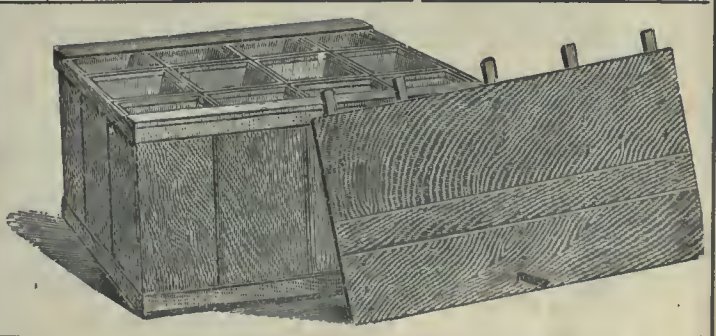

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A Comparison

H. W. Power, Kaslo, B.C.

Last September, I had the privilege of examining some of the fruit ranches around North Yakima, in the neighboring state of Washington. This is considered one of the banner fruit growing sections of the northwestern states, and proved interesting, for purposes of comparison. Like everything else western, the fruit industry is not very old here, but is considerably advanced alongside that of most of British Columbia. Twenty years ago, North Yakima, which is a town with a population of about 15,000, was the centre of a few square miles of hop yards. These have now given place to orchards, peach, apple and pear principally. The big red apple has become a standard of wealth and in certain favored localities horticulturists are refusing $3,000 an acre for their land. This may sound like an exaggeration but it is not. Every foot of land that is brought under cultivation requires irrigation. Thirty years ago the whole country was a desert but where water is applied, horticultural results are wonderful. In peaches, watermelons and many eitrus fruits, North Yakima can surpass any portion of British Columbia. In apples, pears, plums and cherries many sections of the Canadian province are superior, this being more noticeable in the case of the non-irrigated districts.

Around North Yakima the grading and packing of fruit has been made a science, the result of 10 or 12 years of hard earned experience. Hundreds of growers are now reaping the reward of years of patient work. The farmers are the aristocracy and the merchants and bankers take to the background. What has been accomplished in North Yakima within the past 20 years will be duplicated in many parts of British Columbia before another 20 goes by.

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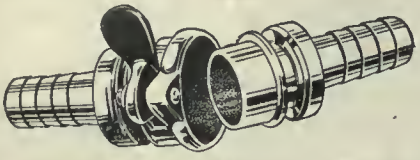

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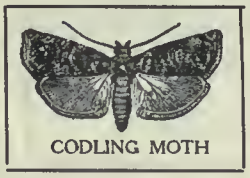

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NATIONAL DRUG AND CHEMICAL CO.

CANADIAN AGENTS, TORONTO

POULTRY DEPT.

Conducted by S. Short, Ottawa

The season is now sufficiently advanced to be able definitely to decide to what extent hatching operations shall take place. Nothing will be gained by postponing the decision. Good hatches should be obtained without difficulty; in fact, the best results should be obtained now with the least trouble. Conditions are perfect for everything that makes for a high percentage of fertility. The breeding stock are on the grass runs, getting the necessary exercise for laying eggs containing healthy, strong germs which develop into vigorous chickens. The most enthusiastic, but strictly amateur beginner is the suburbanite who has just moved into his summer home. He usually has the chicken fever and has it bad.

It may be worth while to offer a few suggestions as to the easiest way to begin the foundation for a flock of poultry that will not only be useful but ornamental. Of course, the initial cost has to be considered. At the beginning, we will discard any idea of keeping mongrels. No sensible person will go to the expense of building a beautiful summer home properly designed, painted and with neat grounds and then, for the difference of a few dollars, introduce or install mongrel fowls in his poultry quarters. So, we will discuss pure bred fowls and how to obtain them.

In the first place, there is the question of breed and then which variety or color of that breed. Every one has a preference or leaning towards a certain breed, and if so, by all means get it. Don't let any one dissuade you from getting whichever you want unless the arguments advanced show that you had through inexperience decided to do something foolish, such as, to intend to buy Black Spanish instead of Black Minorca or something equally unwise.

A beginning may be made, a simple one it is true, by buying one setting of eggs and a clucking hen. This may be done at a nominal cost and a very good start made for say $3; that is, $2 for the eggs and $1 for the broody hen. The hen should be procured, if possible, in the evening about dusk. Make the nest in a box about nine inches deep and about two feet square. Fill the box with hay or straw nearly full and round out the centre in nest shape and give the hen one or two dummy eggs until sure that she will sit in her new quarters. It is better and necessary to shut the hen in a closed pen or else next morning she will likely have disappeared. If she is sitting all right next day lift her off the nest and give her food and water as close to the nest box as convenient so that when she is through feeding she can see the eggs. If she goes back of her own accord she may safely be given the eggs she is required to hatch.

If more than one hen is set in the same room, treat each hen the same way. Give the same number of eggs to each, judging by the number the smallest hen will cover, usually either eleven or thirteen; then, it doesn't matter if the hens exchange nests at any time for good hatches have been obtained from eggs that three different hens had assisted to incubate.

After the chicks are hatched the first requisite is that they shall have, before food, access to fine grit or coarse sand, usually given by scattering on the floor of the coop, or near to where the chicks are having their first run. After the first day feed a variety of food, such as oatmeal, hard-boiled eggs, bread and milk and the prepared chick foods. Alawys feed as great a variety as possible, but best of all let the hen have full range in fine weather and no difficulty will be experienced in raising healthy fowl.

It must not be forgotten that the hen re-

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quires to be dusted with insect powder at least twice during the hatching period. It is safest to dust the chickens also three or four days after they are hatched and again at intervals during the development. Inspection of the chicks will indicate when necessary.

In the March issue, an error occurred in the poultry department that changed the meaning of an important point. The word "exporters" should havo read "experts." See third line from hottom of second column on page XVII.

Electricity of Fruit

The Canadian Grocer.

Some experiments were made in vicinity of Bristol, England, to decide whether or not electricity has any influence in forcing the growth of fruits, wheat and vegetables. In order tbat the effect might be correctly estimated, two crops were grown under similar conditions, one with and the other without the help of electricity. Surprising results have been obtained. In the case of strawberries, on the first pickings 40 per cent. more fruit was gathered in the electrified than in the unelectrified area, which proved also on analysis to contain nearly twice as much sugar. With regard to tomatoes grown out of doors, the early ripening was remarkable, and the yield was 30 per cent. better on the electrified than on the check plot. Wheat in an electrified area of 7,675 agcres yielded 32.5 bushels per acre, as compared with 26.15 bushels per acre in the area not so treated.

Some experiments have been carried out in greenhouses also, chiefly devoted to cucumbers, with which the first results of electrifying was earlier bearing, the first month's picking having been found to yield double the quantity obtained from the check plot. This great acceleration, however, did not seem to exhaust the plants, which not only began earlier, but also continued to bear much later than those grown under normal conditions.

It will be seen that if growers can, by means of electricity, place their goods on the market early before a possible glut takes place, much better prices will be obtained than in the ordinary way. It may be asked whether or not the increased outlay on the apparatus is justified by the returns, but at Evesham, where extensive experiments have been carried on during two or three seasons, the growers are more than satisfied.

Notes and articles of interest to vegetable growers are requested for publication.

We like THE CANADIAN HORTICULTURIST very much. The only fault we have to find with it is that it does not come oftener. The month seems so long between its visits.—Mrs. L. Cavena, Simcoe Co., Ont.

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NAME.....

ADDRESS.....

Similkameen Valley, B. C.

J. D. Harkness

The Keremeos irrigation canal, which has been under construction for two years, is now completed, and water was let in for the first time about the middle of April. The canal, which is more than eight miles long, is an interesting piece of engineering. The water of the Ashnola river is led from its bed and flows by it own gravity across the Similkameen river through a 40 inch pipe which is carried on a brige 400 feet long. Its course down the north side of the valley is partly through open ditch and partly through continuous stave piping, built up on the spot. Of the piping, many theusands of feet were required (diam. 40, 38 and 36 in.) not only as inverted siphens for crossing deep gullies, but aleng the steep mountain sides where ditching would be difficult and where an open cutting would be liable to interruptien from land slides. The tetal fall to the Keremees bench is about 26 feet, and it is estimated that the water will take about six hours to travel the whole distance when carrying the designed capacity. This slow flow will temper the water from its celd state in the Ashonela and bring it to the ochards at a suitable temperature for irrigatien. The canal carries 1000 miner's inches and will serve at present, 2,000 acres, but will probably be extended later.

The lands served by the canal—all rich level bench land, clear except for a little sage hush—are being rapidly taken up by settlers, mostly in 10-acre plots. That seems to be generally considered the proper size for a fruit farm, and people more often undertake less than more. The settlers are mostly from Alberta, Saskatchewan and Manitoba—many of them grain farmers who seek a milder climate and less strenuous employment. Next to apples, peaches—which reach great size and perfection here—are most planted; the early time of ripening—fully as early as in the fruit districts of Washington state—making them a valuable crop.

A good deal of dissatisfaction is felt with the provincial governments inspection service for imported nursery stock. At present every lot imported has to pass through the office at Victoria, often causing serious less through delay and injury in transit, as well as extra expense. Even then it is claimed that the volume of business at the office is se large that its werk of inspection and fumigation is not always done thoreughly. Sub-offices at convenient points are urgently needed .

Montreal

E. H. Wartman, Dominion Fruit Iospector

This is the earliest opening of navigation to the ocean in my eight years' stay in Montreal. Soon we shall see eur ocean liners plowing their way to our port. One of the first to arrive as usual will be from the Mediterranean with a full cargo of oranges and lemons. When we see 75,000 cases of fruit piled 10 to 12 tiers high in our sheds, we will be led to say that the volcanoes haven't swallowed them all. Grape fruit is selling lower than for years and is gaining its ground in common family use. A friend of mine said he used 20 cases of this fruit in his family last winter. This fruit is very nutritious and it should be generally used, for health's sake, before meals.

As apples are very high, trade is slow, bananas and oranges taking their place. Maple syrup at this time of the year fills a place in family diet. It is made in very large quantities on the Island of Montreal

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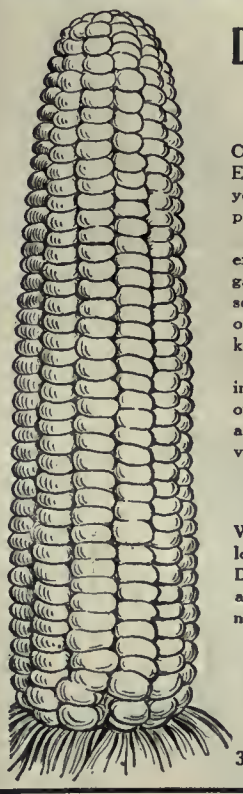

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One of the most complete reports on agriculture that has been received at this office is the annual report for 1908 of Prof. M. Cumming, Secretary for Agriculture for Nova Scotia and Principal of the Nova Scotia Agricultural College. It contains a wealth of valuable information for the agriculturist and stockman. The sub-report of Prof. P. J. Shaw, of the Agricultural College, Truro, deals with the progress of horticulture in that province. Reference is made to the canker worm and the hard knot disease of pears, two orchard troubles that caused considerable loss last year. The work of the model orchards is mentioned and a list of them is given. The report indicates that the future for horticulture in Nova Scotia is bright.

There are evidences of a very large movement of manufactured goods this year, especially in lines purchased by farmers. The Page Wire Fence Company, Limited, report March sales as showing an increase of over 40 per cent. more than in same month of last year.

Mr. J. H. Wismer of the Port Elgin Nurseries, writes us that he has still a good stock of fruit and ornamental trees, flowering shrubs, Norway spruce, Austrian and Scotch pines, etc., etc. His ad. is in this issue, and he is anxious to send you his catalogue if you are interested and will apply.

A copy of the seed, bulb, plant and fruit catalogue of L. L. May & Co., St. Paul, Minn., has been received. In it are listed all the leading varieties of these horticultural products that are grown in the temperate zone as well as many novelties. The catalogue is replete with descriptive matter and cultural directions. A copy may be had on application to the firm.

Some changes have been made in the Ontario Horticultural Society's Act. The limit of the grant to new societies in future will be $75 instead of $100. After January, 1910, no society shall be entitled to receive an annual grant of more than $800. The request of the provincial association that the total grant to the societies of the province be increased from $8,000 to $10,000 was not granted.

Get one of our three-year old Crimson Rambler rose bushes free of cost. See our premium offer on another page of this issue.

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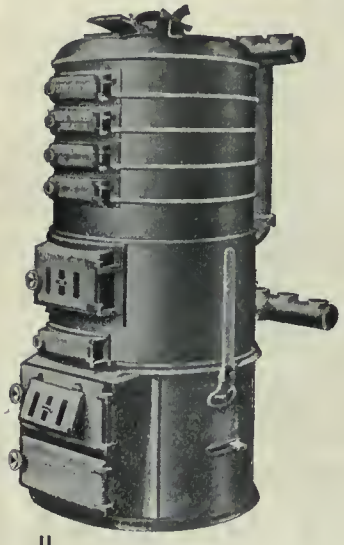

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The Canadian Horticulturist

Vol. XXXII JUNE, 1909 No. 6

The Principles of Plant Breeding*

Prof. W. Lochhead, Macdonald College

THIS is a large subject nowadays. The last seven years have been "fat" years for the student of plant and animal breeding, and it is almost impossible to keep up with the tremendous strides that are being taken by hundreds of scientific investigators both in America and Europe. Every morning we enquire what new discovery was made the day before, lest we overlook some important advance and fall behind in the onward march of the times.

On account of the recent discovery of some of the fundamental principles of heredity the plant breeder is now able to work with some degree of certainty in the production of new forms of plants. The haphazard guess-work of former days is to some extent replaced by definiteness, and "the breeder may proceed to build up synthetically, character by character, the plant which he requires. His chief limitations will be those imposed by Nature upon the variations of living forms."—(Punnett.)

It is my purpose to discuss the newer aspects of plant breeding, not from the standpoint of a practical plant breeder, but rather from the standpoint of the biologist who is interested primarily in the principles that underlie scientific plant breeding. In the time at my disposal it is impossible to deal at all fully even with the principles of plant breeding, inasmuch as each of the main methods of plant improvement is now regulated by certain principles of its own. The ideas of "elementary species" and "mutations" belong distinctly to the twentieth century; hence they are not yet out of their infancy stage, and no one is bold enough to state how far-reaching the influences of the new ideas may be. Already in many quarters Darwin's explanation of the process of evolution is being superseded by that offered by De Vries in his theory of mutations. It is becoming more and more evident that the principles underlying plant breeding are closely connected with the question of the origin of species and of evolution.

Plant breeding may be defined as "the intentional production and perpetuation of desirable varieties of cultivated plants." The three main methods now in use for the improvement of plants are: 1. Continued selection of superior individual plants; 2. Separation from mixtures of such individuals as show desirable qualities, and at the same time breed true to type; 3. Combination of the desirable qualities of two strains or varieties by hybridization.

It is plain that all three methods cannot be employed in every case of plant improvement. For example, some plants are propagated by buds; the crossing of two varieties or strains to form desirable hybrids is a process too difficult and too involved for any person but the trained plant breeder; and, lastly, the separation of new and desirable elementary species requires such careful observation of a refined order that the average man untrained along this particular line will seldom meet with success.

Best in America

I sincerely appreciate the able editorial management of our magazine—THE CANADIAN HORTICULTURIST—the best in America. —H. J. Snelgrove, President, Ontario Horticultural Association.

SELECTION

The improvement of plants by the continued selection of superior individual plants has been in vogue since Roman times. Virgil, for example, in his "Georgics," wrote: "The chosen seed improved through years and labor was seen to run back, unless man selected by hand yearly the largest and fullest ears." It is probable, therefore, that our chief cereals have been kept up to a high standard of excellence through all the centuries, by a strict process of selection. The origin of most of our horticultural fruit-producing plants is extremely uncertain, being lost in the mists of antiquity.

The importance and value of selection lies in the fact that plants as a rule are highly variable. It is a common matter of observation that plants produced from seed obtained from the same parent may vary more or less widely in size, shape and other characters. Some of the plants will be inferior from an economic standpoint, others will be superior, but the majority will be about the normal. Experience tells us also that if the seeds from a superior plant be sown, the majority of the new individuals that arise from the seeds will show themselves to be superior. In some cases, therefore, the desirable variations are transmitted to the progeny, and by continued selection of the best seeds from the best plants the plant grower can obtain a higher yielding strain of superior quality. However, in order to keep the strain up to this high standard it is necessary to continue the selection year after year, for unless this is done the plants gradually revert to the normal or average of the strain before selection began.

It is by adoption of this plan of selection that the Canadian Seed Growers' Association hopes to increase the crop yield of Canada. Although there seems to be a limit to the improvement effected by selection of this kind, (i. e., that improvement cannot continue indefinitely, but has a maximum limit) yet the general adoption of this principle of selection of the best seed from the best plants will greatly increase the value of the crops of the country.

Sometimes it is possible to force variation in plants which are but slightly variable by changing the conditions surrounding the plants. For example, it has been observed that high cultivation and manuring will often cause plants to vary considerably, so that the plant breeder is in a better position to make his selections. Budding, grafting and vegetative propagation also tend to bring about variations from which the breeder may begin his selection.

There are two methods of growing plants for selection, which Webber calls the "Nursery Method" and the "Field Method." By the nursery method "each plant is grown under the most favorable conditions for its best development." By the field method "the selections are made from plants grown under normal field conditions." Both methods are in general use by plant breeders, but the nursery method requires more care and attention than the ordinary breeder would care to give to the work.

*Part of an address delivered before last convention of the Quebec Pomological Society. The next instalment will deal with the separation of mutations that have desirable qualities. The third instalment will discuss the question of hybridization.

Dwarf Apple Trees

W. T. Macoun, Central Experimental Farm, Ottawa

There has been a revived interest in dwarf apple trees in Canada and the United States during recent years owing principally, no doubt, to the fact that spraying is now considered necessary to the best success with apple trees, and that dwarf trees can be sprayed much more easily than standards. The success with dwarf trees in America has not, however, been so generally successful as was hoped, although in some cases good results have been obtained. The difference in results is due to the difference in climate, soil, varieties, and so forth, but also largely to methods of pruning, dwarf trees requiring much more care in pruning than standards.

Dwarf trees under favorable conditions come into bearing much earlier than standards, fruit being sometimes obtained the second year after planting of varieties that usually take six or seven years to come into bearing. As dwarf trees are much smaller than standards the crop is smaller on dwarf trees in proportion. Dwarf trees may be set about ten or twelve feet apart each way or even less. Two of the commonest kinds of dwarf stock for apples are the "Paradise" and the "Doucin," the former dwarfing the tree more than the latter. The "Doucin" stock will probably give better results on the whole in this country than the "Paradise."

The Cherry Orchard

Wm. Platts, Jr., Pelham Corners, Ont.

We prefer a clover sod for starting a cherry orchard. After you have cut your first crop of clover, plow the sod under thoroughly, cultivating it until the middle of October, then mark the ground out eighteen by twenty feet apart. We plant in the fall so that the ground will get thoroughly settled around the roots by spring, so that they get a good start before dry weather sets in.

Among the Blossoms
Orchard of Wm. Platts, Jr., Pelham Corners, Ont.

We think that a good one year old tree is the best to set out, because it makes a better start and is more sure to grow.

We plant some vegetables or small fruits that take lots of cultivation between the rows so as to make a good growth each year, until the trees commence to bear well.

We start pruning about the middle of March, keeping the trees headed low, and plow away from them just before they come in bloom. From this on keep the ground thoroughly cultivated, using the disc-harrow and the cultivator, until the crop is harvested.

We generally have some good girls and boys to pick them and pay them fifteen cents a quart basket, using small step ladders, or standing on the ground, for being headed low, there is not much climbing to do. We sell the fruit to our nearest canning factory, which is located near Welland, Ont., two and one-half miles from our orchard. After harvesting the fruit we spread manure, and then plow up to the trees for the coming winter.

Arsenate of Lead

M. C. Smith, Burlington, Ont.

Arsenate of lead has many advantages over Paris green as a poison to control codling moth or any leaf eating insect. It mixes readily with water and stays mixed with a minimum of agitation. It is much lighter than Paris green; consequently, much more easily held in suspension. There is nothing in it to clog nozzles. It sticks on the foliage and cannot be washed off by rains; in fact, arsenate of lead will last on the foliage throughout the entire season. It is the safest form of poison that can be used. It positively will not burn foliage of any description, fruit or vegetable.

It should be used in the proportion of two pounds to a forty gallon barrel. At this strength it will control codling moth. If canker worm or potato bugs were allowed to get very bad, an additional pound could be added with absolutely no danger to the foliage.

It is advisable when buying arsenate of lead to get a brand that has a guaranteed analysis of arsenic oxide of at least sixteen per cent., such as the "Niagara Brand." This brand has been used very largely in Ontario and the United States and has given excellent results. It costs from twelve to fifteen cents a pound, according to the size of package. I would not have any brand of arsenate of lead at any price that had not been fully experimented with on foliage, nor would I buy one that did not have a guaranteed analysis of at least sixteen per cent. of poison.

Of late years, Paris green has varied so in strength that a grower is never sure of results; an overdose at any time is dangerous to foliage. The first cost of arsenate of lead would be slightly higher than Paris green but the difference in the results will more than make up the difference in cost, and it is the best results that growers should look for. Arsenate of lead can be applied by itself, with lime and sulphur or with Bordeaux mixture.

The codling moth is the most destructive pest that the orchards of Ontario are subject to. It causes more loss than any other, and it is the easiest controlled. A thorough application of arsenate of lead when the blossoms are falling will almost entirely control it. Thoroughness in spraying is the most essential feature. Fill in the calyx end of every blossom with poison. Do not try to spare your spraying material. In seasons like last year, when the codling moth is very active, a later spraying in about three weeks or a month is necessary. What growers in Ontario need to learn is thoroughness. This and arsenate of lead used at the proper time will control codling moth.

Forming Apple Trees

Editor, THE CANADIAN HORTICULTURIST: I read with special interest, the article on "Forming and Pruning Apple Trees," in your issue of May, 1908, and I advise the re-reading of that article by lovers of tree culture. The writer of it says truly, "The main stem is the tree, keep that intact," and then contrasts it with the tree that has its "centre cut out"—causes lots of trouble—loss. Ten years ago, about sixty trees of this "second class" style, was sent me to set out. The Duchess has borne some fruit every year. Some branches split off, and many more would have done so had I not fastened the branches together with screws, and wire and small bolts.

On reading the article referred to, I began to consider and examine the trees, to find that they had been beheaded, and I had worked along the same lines in caring for them—so-called. It is time that more care be given and more knowledge be brought to bear on this point. —Peter Barrett, Truro, N.S.

To spray effectively, be on time and be thorough.

If you want to save labor and expense in caring for the new orchard, start the trees with low heads.

Nova Scotia, New Brunswick and Prince Edward Island horticulturists are requested to contribute articles and photographs for publication in the July issue of THE CANADIAN HORTICULTURIST, which will be devoted in a large measure to topics of interest to our friends in the maritime provinces.

Peach Yellows*

M. B. Waite, Pathologist in Charge, Investigation of Diseases of Fruits, U.S. Department of Agriculture

WE have always considered that three annual inspections, when properly made at the right time, were sufficient for finding trees affected with yellows. It need hardly be mentioned that the important thing about this work, when it is really undertaken, is to find the diseased trees. Their prompt removal, after being found, is a secondary matter, which is to be taken for granted. Ordinarily three inspections are sufficient.

In Ontario, the first one should be made in July or perhaps about August 1st; the second one should be made the latter part of August or about September 1st, and the third late in September or even running over into October. If a previous eradication has never been carried out, all plainly diseased trees should be removed as soon as they can be noted in the spring. It is always a good thing to inspect a block or row of peaches when they are ripening or about to ripen their fruit. Then the symptoms of premature fruits can be utilized. It is always a good plan to have the pickers instructed to call attention to every tree with suspiciously large or premature red-spotted fruit. Orchards should be inspected tree by tree, row by row, thoroughly, regardless as to whether they are supposed to have the disease or not. In this way, unsuspected cases will often be found.

It seems to me that where a severe outbreak occurs, doubling the number of inspections may well be advised. That would mean pretty nearly an inspection about every two weeks from the first of August. It certainly is advisable to make a very late inspection in October so as to prevent, if possible, the disease carrying over another year.

The orchardist or inspector is often puzzled over a doubtful case. He dislikes to condemn a tree for removal unless certain that it is diseased. To my mind, however, the real doubtful cases which are not plainly caused by some other disease or injury should invariably be removed. One is certainly taking chances of leaving infection behind when he leaves these uncertain cases. It should always be borne in mind that the removal is done for the benefit of the healthy trees left behind.

INSPECTION LAWS

The best results are to be secured in districts where every orchardist will be his own inspector. No outside man can more quickly and accurately detect this disease than a peach grower in his own orchard. He knows the appearance of the trees on every different piece of land, soil, type and exposure, and keenly recognizes and watches any change of symptoms which could be attributed to the yellows.

On the other hand, it is absolutely necessary, to secure good work in a community, to have official inspectors. The reason for this is that many growers, although constantly in the presence of this disease do not learn to recognize it in its early stages, especially when the trees are not in fruit. Furthermore, there are a good many trees in gardens or by the roadsides or otherwise out of commercial peach orchards, that would receive no attention. To secure proper uniformity, therefore, some sort of an official inspector, no matter by whom paid, should be employed. The smaller the unit, the better. The less territory an official inspector must cover, the more thoroughly he can be expected to accomplish his work.

As a matter of fact, only a few orchardists in my experience have ever done strictly first-class work in eradicating the yellows. Many orchards otherwise well cared for by progressive and enterprising growers are still somewhat neglected in this regard, and it is a question in my mind whether the recent severe outbreak in southern New York and Connecticut cannot be to some extent attributed to carelessness on the part of the growers. I have been through these states every summer for the last four years and have been surprised to see the yellows left so commonly scattered about.

DISPOSAL OF DISEASED TREES

A word in conclusion as to what to do with the yellows trees after they are found. The main thing, of course, is to find the diseased trees, but when they are found, with our present lack of knowledge about the disease, we feel that the only safe way is to dig the tree up or pull it up with horses and destroy it by burning. Perhaps the very safest way of all is to bring dry wood into the orchard and burn the tree on the spot or in the centre of the colony, if there are several trees, without dragging it out. As a matter of fact, however, there has been so little unsatisfactory experience as to make this seem an extra precaution. Possibly it might be advisable to pull the trees up and let them wilt or dry out before removing from the orchard. At any rate, there seems to be abundant evidence that a dead peach tree, though it may have had the yellows, is not dangerous in transmitting the disease. Never cut the tops off yellows trees and leave them standing. Such trees may still sprout out new growth and from the yellows standpoint are still in action. Kill the tree, root and branch, at any rate. Many orchardists wish to use their yellows peach trees for fuel, and, while this is not supposed to be absolutely safe, I have seen good results in many cases where this was done.

Summing up, therefore, I should say that if you wish to be extra careful concerning infection, burn the tree at once, but if the tree is promptly pulled out and allowed to dry you have probably done all that is possible in killing the disease. Above all, the best advice I can give you is to pull out and destroy every peach tree in the province which shows the slightest symptom of the yellows. If this is carried out, especially if repeated for two or three seasons in succession, all the previous history and experience connected with this trouble points to success in bringing this malady under control. New orchards can then be rapidly planted out

An Orchard That is Kept Well Cultivated and in Good Condition
Orchard of Mr. A. E. Sherrington, Walkerton, Ontario, who may be seen in the illustration.

*Seventh and concluding instalment of a paper read at the convention of the Ontario Fruit Growers' Association held in Toronto last November.

and the peach industry renewed under more favorable conditions than ever.

It is ordinarily necessary to take fairly good care of the orchard, at least to give it fair cultivation and fertilization, in order to tell diseased trees. If trees are weak and sick from nitrogen starvation, growing in uncultivated and neglected weedy orchards, it is oftentimes impossible to properly inspect them. On the other hand trees over-stimulated with fertilizers, especially nitrogenous manures, m a fyiatosohlw fgtmetwafthmm ures may fail to show the yellowing or leaf symptoms promptly.

Notes on Some New Paeonies*

R. B. Whyte, Ottawa

WHEN in England last June, I visited all the exhibitions and nurseries available, where pæonies were shown and made careful note of those that I considered the most desirable varieties—ones that were new to me. Among the many hundreds of good sorts in cultivation there are doubtless many as good, and possibly better, than those noted, but any grower wishing to add to his collection can rely on the desirableness of any of the varieties in the annexed list.

At the Royal Botanical Society's show at Regent's Park, on June 17, the first one at which pæonies were staged in any quantity, the large exhibitors were Kelway & Son, Barr & Son, T. S. Ware and Paul & Son, all of whom had very large collection. On June 19, I visited Barr & Son at Surbiton and carefully examined their extensive collection. Pæonies were one of the main features of the Royal Horticultural Society's show on June 23, and at the Franco-British flower show on June 24th. At both these shows the large exhibitors were Kelway & Son, Barr & Sons, R. H. Bath, Limited, George Bunyard & Co., and J. Veitch & Son.

On June 27, I visited the Royal Horticultural Society's gardens at Wisley and found a few varieties in their large collection in fine condition at that late date. In the following list those that I considered the very finest in color, shape and size, I have marked with XX. Those marked with X, while they appeared to me not quite up to the standard of the XX, are still very fine sorts and well worthy of a place in any collection.

In the light of my increased experience the list of twelve best sorts given last year in my talk on "Pæonies and How to Grow Them," might be revised and improved by the substitution of four of the best of the varieties in the annexed list: Baroness Schroeder, Miss Salway, Ella Christine Kelway, Bunch of Perfume taking the place of Marie Lemoine, Queen Victoria, Lady Lenora Bramwell and Duke of Wellington.

AT BOTANICAL GARDENS

The pæonies exhibited at the Royal Botanical Society's show, Regent's Park, were as follows: Kelway,—XX, Bunch of Perfume, rich deep pink, large, very double, P; Dorchester, blush, very fine; Duchess of Teck, creamy white to pink, guard petals large, very fine; Ella Christine Kelway, extra fine pink, very large, flat, large petals, P; Miss Salway, white primrose guard, large, extra fine centres, P; Lady Ester Smith, white guard, cream centre, a few large petals in centre; Mr. Manning, dark crimson, very large, fine form.

Barr & Sons—Lady Ardilaun, white-slightly-tipped carmine, very large and very double; Bonaparte, dark crimson, very large, fluffy petals; Humei Carnea, pink guards, white centre, large, very fine, P.; Delicatissima, (Floral Treasure), blush, very large and double, P.; Mad. Calot, creamy blush, deep shape, very fine, P.; La Tulipe, white, faintly tipped carmine, very fine shape, P.; Albert Crousse, clear pink, very large, very double.

Kelway—X, Sainfoin, rich, deep pink, semi-double; Hallam, crimson, large and very double; Limosel, deep pink, very double, good size, P; Baroness Schroeder, pale pink to cream, large guards, medium size, P; Portia, as festiva maxima with a shade of blush; Sir M. Singe, deep crimson—ball shape—very fine.

Barr & Sons—Countess of Clancarty, very fine, pure white, P; Gloire de Patrie, very large, deep pink, P; Lord Roseberry, fine shade of pink; Leonie, pale pink, medium size, fine shape and color, P; Triomphe de Paris, creamy, with a shade of pink, large guards, Alba Superba, white cream centre, good size.

BARR'S NURSERIES

Marshall McMahon, light crimson, large; Eugene Verdier, pale pink, semi-double, shaded salmon; Washington, silery pink; Snowball, white—large guards; Silenus, silvery pink; Gen. Cavaignac, rosy silvery pink, shaded clear pink, P; Charles Verdier, dark rosy; Duchess of Nemours, white to faint primrose, P; Mistress Parkinson, lavender pink, fine form; Duchess of Sutherland, pink, good color and shape, medium size, P.

KEW GARDENS

L'Elegance, rosy pink, good, P; Lady Carrington, blush to white, P; Mons Dupont, very like La Rosiere, very fine.

ROYAL HORTICULTURAL SOCIETY

Kelway—XX, Sir George White, very large, rosy pink; Rev. W. Wilks, very large, pink; Lady Romilly, as Md. D'Hour, rather deeper pink; Marie d' Hour, rosy pink, very fine; Mons. Roussilon, very large, dark blush, P; X, Lottie Collins, very large, light crimson, semi-double, yellow anthers; Lord Cromer, large, rosy pink; Duke of Devonshire, light crimson, yellow centre.

FRANCO-BRITISH EXHIBITION

R. H. Bath—XX, Mons. C. Leveque, extra fine blush, P; Enchantress, very pale blush; Claude Loraine, extra large pink, good form; Edmond About, extra fine pink. streaked Carmine; X. Marie. very pale blush; Gismonda, pink, very large; Mad. Hutin, very double pink, centre nearly white, ball shape.

R. H. S. GARDENS AT WISLEY

XX, Viscount de Fonceville, very large pink, fine form; Mde. D. Galhau, very large pink, extra fine; X, De Candolle, rosy pink, fine shade; Felix Crousse, dark, rosy red, ball shaped.

REVISED LIST OF BEST TWELVE PÆONIES

Md. D'Hour—Very large, free bloomer, flesh color, tipped carmine.

M. Jules Elie—Silvery pink, very large.

La Rosiere—White, yellow centre, semi double, remarkably free bloomer, very sweet.

Festiva Maxima—Very fine, white-tipped carmine.

Floral Treasure—Soft rose, fragrant, free bloomer.

Asa Gray—Salmon pink, very large, free bloomer.

Claire Dubois—Light rose, very large, free bloomer.

Ella Christine Kelway—Extra fine pink, very large, flat, large petals, sweet.

Baroness Schroeder—Pale pink to cream, large guards, perfumed.

Miss Salway—White, primrose guards, large, very fine centre, perfumed.

Bunch of Perfume—Rich, deep pink, large, very double, perfumed.

Rubra Superba—Purplish crimson, very free bloomer.

*A paper read at the convention of the Ontario Horticultural Association held in November.

Try something new in the garden.

The July issue of THE CANADIAN HORTICULTURIST will contain a number of articles that deal with fruit growing in the maritime provinces. Send articles and photographs for publication in that number.

Cyclamen for the Amateur's Greenhouse

A. Alexander, Hamilton.

CYCLAMEN *Persicum giganteum* has been brought to such perfection in coloring and size of bloom, of late years, that it is one of the most desirable flowering plants for winter and spring use in the amateur's greenhouse. I have grown the cyclamen from seed for many years, and I am fonder of them than ever. I will relate my experience of last year with 100 seeds for which I paid one dollar. It was said to have been saved from a very fine collection, and the result proved the claim.

Cyclamen Plants One Year from Seed
Conservatory of Mr. A. Alexander, Hamilton

In the first week of February, 1908, I sowed the one hundred seeds in a seed pan, in soil from an ordinary compost heap, where weeds and tree leaves and the decayed stems of herbaceous perennials and general garden rakings had been accumulating for about two years. With this soil, I mixed about one-third of sharp sand. The seed was covered very lightly, and the pan was plunged in the sand of the propagating bed. At the end of May, they were potted into two and a half and three-inch pots.

They stood on a shaded shelf of the greenhouse until the middle of June, when they were plunged in front of a bed of tuberous-rooted begonias, shaded by the over-hanging branches of an apple tree, until the end of August, when they were re-potted into four, five and six-inch pots, according to their size and vigor. They stood in a partially shaded place out of doors until the middle of September, when they were placed in the greenhouse, where they began to bloom about the middle of December. I should say that they were potted in the "compost heap" soil with the addition of nearly one-half of sifted old hotbed manure, with careful drainage.

Cyclamen Two Years from Seed—73 Blooms

Each of the fifty plants that I kept had from six to fifteen blooms, and some of them are still in bloom. The photo of the young plants was taken in April of this year. To give some idea of the size of the blooms, I measured the lobes of the corolla and found them to be two and three-quarters inches in length.

Sometimes I keep two or three in a growing condition for another year. One of these is shown on this page. It had seventy-three pure white blooms at the end of March when it was photographed, being then about twenty-eight months from the time of sowing.

I would recommend sowing the seed two months earlier than I did last year; then, larger plants and more bloom would be secured. I had every tint, from the purest white to the deepest crimson. I think that every seed must have germinated.

A Partial View of the Miller Greenhouse Disaster in Toronto

The accompanying illustration gives a slight idea of the wreck caused by the boiler explosion at Miller & Sons, large commercial growers of flowers and plants, Toronto, recently. The pile of bricks in the centre of the picture are from the wrecked chimney. The ends of two of the boilers can be easily seen. The boiler that exploded was connected to the pipe that protrudes from the ground in the lower right hand corner of the picture. The head of the boiler, weighing one ton, was blown 1,000 feet away. The centre course of the boiler was blown 300 feet away. Another part of the boiler was blown into the greenhouses, 60 feet away, and dropped on a spot where one of the employees was standing only a minute previously. That no lives were lost is considered one of the extraordinary features of the accident. The illustration shown was loaned by The Canadian Casualty and Boiler Insurance Co., Toronto.

"A weed is a plant out of place."

A Roof Garden

C. D. Blachford, Hamilton

MY roof garden is planted in boxes of various sizes, ranging from one foot deep and wide by about eight feet long for the tops of the walls and from three feet deep and wide to eight feet square and one and a half deep, placed to the best advantage according to the topography of the roof.

The fern boxes are constructed with net wire semi-circle fronts, moss being placed in the netting before the boxes are filled with earth, the green moss effect showing in front adding much to the beauty of the receptacles.

Wire netting about four feet high runs completely around the tops of the walls, attached to uprights from the boxes, making an enclosure about eighty feet long by twenty-two feet wide.

Slat wooden walks are laid on the gravel roof, a verandah erected at a suitable location, and the boxes interspersed here and there, makes the whole when in bloom an ideal picture, wanting only green grass to compete with a lawn garden.

More attention has to be paid to watering a roof garden than for an ordinary garden, as the roof is situated just where, part of the day, the sun has full play; consequently, the boxes will quickly dry unless daily watering is adhered to.

Summer cypress plays an important part in the arrangement and grouping, while castor oil plants add much to the charming effect. Scarlet runners, hyacinth beans, sweet peas, and climbing nasturtium planted in the outer boxes form an enclosure or floral fence to the garden, while begonia, white alyssum, blue lobelia, geraniums and other plants, are distributed in boxes variously placed. On one side is a high stone wall of an adjoining building; this, by attaching wire netting about eight feet high, has been utilized to form a wall of green by planting a quick growing climbing vine and when in bloom it is beautiful.

Water Lilies

A. H. Ewing, Woodstock, Ontario

AS far as I have gone into aquatics, no hardy nymphæa seems to be so satisfactory as *Nymphæa odorata*, "W. B. Shaw," herewith illustrated. It is the most free flowering of any of them, its leaves spread over a large area, it increases and multiplies to an almost alarming extent, is the first to get into flower and is with the last when the frost comes, blossoming the whole season through. The color of the flowers is a beautiful clean, rose pink with yellow stamens. Dreer describes it in his catalogue as "one of the best hardy water lilies under cultivation," a description which I can truthfully endorse. From a tuber with one lead, obtained three years ago, I had a stock of at least seventy-five heads this spring, the large majority of which I was reluctantly obliged to throw on the dump for want of room or customers to give them away to. This sort is, however, essentially a pond lily; it is altogether too rampant for tub cultivation.

Nymphaea odorata, "W. B. Shaw"
Grown in lily pond, "Altadore," Woodstock, Ont.

N. tuberosa rosea is another very pretty pink variety, and not quite so strong growing or so floriferous as the foregoing. *N. tuberosa Richardsonii* and "Wm. Doogue" are the best whites with me; the latter is described in Dreer's catalogue as "of a pleasing shell pink color," but it comes white here. *N. Marliacea chromatella* is certainly the best yellow, is a free and continuous bloomer and a vigorous grower, although it does not make a very large spread. For a distinct crimson, "James Brydon" "takes the cake"; it is a free bloomer and would be just as desirable in a tub as in the pond.

There are many other varieties but the capacity of one's space and pocket is limited. The pond under my care has a capacity of twenty-four nymphæas, and there are twelve varieties.

It is very pleasant to note the increasing interest that is being taken in aquatics. As their cultivation is very simple, and their preservation through the winter very easy, it may be safely predicted that many present frog ponds will soon be "things of beauty and a joy forever."

Aster Seeds for the Saving

Max Moineau, Toronto

HAVING noticed the difference of opinion existing between Mr. W. Norman, of Elmira, Ont., and Mr. Charles J. Fox, of South London, regarding the saving of aster seeds, I should like to give my own experience, from the amateur point of view. I invariably save my own seeds, but only from flowers that particularly please me. I select a few of my very best blooms, strip the plants of all but three or four buds, and these I cover with cheese cloth to prevent cross fertilization by insects. The flower attains full development before the pollen is ripe, and I can easily pass judgment upon it before there is danger of accidental cross fertilization.

If I wish to cross a variety, I cover the two varieties which I have selected for the purpose, and when the anthers burst and shed their pollen, I use a camel's hair brush, filling it with the pollen of one flower and dusting it over the stigma of the other; the one I have crossed I keep covered with cheese cloth. My flowers always come true, and I have originated several new varieties, which I consider as fine as any that I have seen.

This year I have in my hotbed some beautiful plants, the greater number of which were started from my own seeds. I have others, however, which I bought. I always buy the newest varieties with which to experiment, but at present the best looking plants I have are from my own seed. I quite agree with Mr. Fox that, if flowers are not protected, the bees will cross them; but, by covering them as I do, I get them true to type. Besides, after gathering the seeds, I make a careful selection, keeping those only that are the best developed. Among the many that I have bought, I have never seen as uniform a collection as I get from my own gathering and selection.

I maintain that if one is careful enough, he can have finer seeds, and better flowers from his own collection than can be secured from many of those that he buys. I have bought seeds which, from a whole package, have produced only six or seven plants, and perhaps only one of them true to type. My own seeds have produced ninety-five per cent. of good plants and well developed flowers.

What the aster really needs, for the proper development of seeds, is the best of attention with the cultivator and plenty of fertilizer. Hardwood ashes, administered about the end of July, makes a wonderful improvement.

I have practiced saving my own seed for several years and, whenever I cover the flower in time, I have not been disappointed. This covering must be done before the pollen ripens, or it will be of no avail. I do not know what method the commercial grower adopts, but I should think that where large fields of asters, of many varieties, are grown in the open, the danger of cross fertilization would be greater than where an amateur protects his seed by covering. Mr. Fox states that "Each color is grown separately. Every plant showing the slightest signs of a wrong color is destroyed." This method may be necessary among commercial growers, but if the amateur, after making his selection of a seed flower, uses the covering method, he can have true seeds, and better seeds, at a smaller cost, with less discouragment, and without the ruthless destruction of other varieties.

For amateurs, I am an advocate of saving seed from the best of their favorites, but I would not confine them to this method alone. Look the catalogues over for the latest novelties, secure only the best from the most reliable growers, and study the improvement, by cross-fertilization, of old favorites. Herein lies the greatest fascination.

A Pond of Natural Origin That Has Been Beautified by Artificial Means
On grounds of Mrs. Donnelly, Cobourg, Ontario

Old English Landscape Art Applied to the Adornment of a Home in Canada
"Hamilton House," Cobourg, Ont., the summer residence of Mrs. C. B. Tracy, New York City, and formerly of Hon. Sidney Smith, a postmaster general of Canada in pre-confederation days. Here, King Edward VII (then the Prince of Wales) lived during his three days stay in Cobourg in 1860. The gardens are laid out in formal style with terraces, sunken flower beds, hedges, arbors, closely trimmed evergreens, and so forth.

As a general rule, it is best for amateur gardeners to steer clear of fancy flower beds. Unless given great care and attention, they will not be satisfactory.

Some Notes on The Dahlia

J. Cavers, Oakville, Ontario

THE culture of dahlias is almost as simple as the growing of potatoes. Existing varieties are propagated by division of the tubers, by cuttings and, to a limited extent, by grafting. New varieties are obtained from seed. The buds, or eyes, are in the neck of the tuber, not in the body of it, as in the potato. The tuber may be divided into as many pieces as there are eyes, care being taken to have a good sized piece of tuber for each eye, for the first nourishment of the young plant. Cuttings made from the growing wood are readily rooted in sand with bottom heat.

Do not plant a dahlia tuber—or any tuber or bulb—in contact with manure.

The following are conditions from which good results may be expected,—open sunlight, a free circulation of air, a plentiful supply of moisture, and a good loamy soil, well pulverized and not too rich in nitrogenous plant food. Give each plant about ten square feet of surface.

The tubers start to bud before it is desirable to plant. If these be placed in a strong light,—not in direct sunlight,—and protected from frost, the buds will develop slowly and make strong plants for setting out.

Training of the growing plant is desirable, and the most approved method is known as "the single stem branching system." The chief feature of this system is to prevent the plant from making a main trunk, and the method is simple. When the young shoots appear, remove all but the strongest one. Allow this one to grow until two pairs of leaves have been developed, then pinch back the main stem, or leader, to the upper pair of leaves. This will give a short single stem with four long branches close to the ground. A similar pinching back of the leading stem of each of these four branches may be made. The effect of this system of training is to give low-set, symmetrical and widely-branched plants that will withstand high winds without being tied to stakes. Another desirable result is that the first imperfect, short-stemmed flowers that are formed on many varieties under the ordinary system are avoided and, under the system recommended, finer flowers are produced on long stems, well supplied with foliage.

The dahlia is a late blooming plant. It will not give satisfactory results from forcing or from too early planting. The finest blooms, and these are the chief consideration with amateurs, are developed in September, the season of long, cool, dewy nights. Planting from the 1st to 15th June in Ontario will probably give in an average season better results than earlier planting.

Two or three days after the first killing frost, the stems should be cut off, the tubers carefully lifted, and allowed to dry in the sunshine, after which they may be stored in sand in a cool, but frost-proof cellar, care being taken that the moisture does not collect and remain in the crowns of the tubers. Such moisture will almost invariably produce rot.

Dandelions in Lawns

Dandelions, narrow-leaved plaintains, docks and weeds of that class can scarcely be gotten rid of except by spudding, and unless this operation is performed when the weeds are young, it may not be satisfactory, especially in the case of old dandelions. A spud may be purchased at a hardware store or from seedsmen. Run the instrument (which resembles a wide screw driver or chisel) downward alongside of the root to loosen the soil so that it may be pulled out whole. Except in the case of young dandelion roots, do not be content with simply cutting off the plant below the surface of the soil. After using the spud, immediately use a pounder to fill up the holes that otherwise would afford lodgement for seeds that are blowing about freely. These spots may also be sown with grass seed to advantage.

Dandelions may be treated with chemicals but where they are very prevalent the process is slow. A few drops of sulphuric acid (oil of vitriol) poured on the crown of each plant usually will kill them. Spraying is also advocated for killing young dandelion plants. A twenty per cent. solution of sulphate of iron is used. Dissolve two pounds of sulphate of iron in a gallon of water, stirring with a stick to hasten solution. Apply with a hand sprayer. Use one gallon of this solution to one square rod of greensward. A second application may be necessary. The grass will be blackened and appear killed but in a week or so it will recover and grow with increased vigor. Old dandelion plants cannot be killed by spraying. On these apply dry sulphate of iron to the heart of the old plant. If this is repeated once or twice, it will kill the old plants. Where the lawn is large and the dandelions plentiful, either of the foregoing operations may require too much time and expense. In such cases the only thing to do, is to dig or plow up the turf, and make the lawn over again.

Weeds are more plentiful on thin lawns than on those that are thick and velvety. By improving the turf, by means of fertilizing and additional seeding to thicken it most weeds will disappear. Keep the mower going, as it will do much towards keeping down most weeds.

A Well Planted Perennial Border is Beautiful from Beginning to End of Season.

The one illustrated was taken at "Dunain," the residence of Mr. Barlow Cumberland, Port Hope, Ont.

From England comes a suggestion for the conversion of the home greenhouse into a swimming tank when flowers will not grow. During the summer months the greenhouse often is idle. Use lime and cement for floor and sides and turn it into a pleasure place. The water may be warmed, if necessary, by the pipes that are used in winter for greenhouse purposes.

Lawn and Garden Hints for June

THE lateness of the season this year has kept garden crops backward. Seeds that were put in the ground a month and more ago are in many instances barely showing through the ground. The wet weather last month may have rotted some kinds of seeds and, therefore, may necessitate reseeding. Plants started too early, that have been injured, may need replacing.

Warm weather this month will bring things on rapidly. Watch the weeds and cultivate the garden frequently. Stirring the surface soil, even if it is apparently clean, will destroy many young weeds that have started to grow in the soil.

Sometimes young vegetable plants find it difficult to break their way through the surface of the dry soil and are either delayed in appearing or killed. To prevent this condition, it is well to soften the soil by means of watering. Apply water also when needed by growing plants. Do not allow anything to suffer from drought.

Plant sweet corn, cabbage and cauliflower. For a small garden, buy plants of the two latter rather than attempt to grow them from seed.

Be sure and have a variety of crops for salads and garnishes. The best of these is lettuce. It is easy to grow except during the heat of summer, and even then, it will prove successful, if shaded and watered and grown carefully. Other crops of these classes, some of which should be in every amateur's garden, are parsley, endive. cress, chicory, mustard and corn salad.

When danger of frost is past, sow seeds of such tender plants as melons, cucumbers and squash. Sow plenty of seed and do not thin out the seedlings until the insects have a chance to do their work. Keep young plants covered with some good insecticide. The use of lime or road dust also is useful for this purpose.

Thin out the onions, beets, carrots, parsnips and others that require it. The more space that is given to these crops, the larger they will grow, but better quality is had by allowing the plants to stand fairly closely together and thereby keeping them on the small side.

WITH THE FRUITS

Cultivate the newly-set strawberry plants and nip off all blossoms that appear. Replace any plants that have died. Some radish or lettuce may be grown this month between the strawberry rows. They will be off long before the strawberries need the space.

Pick the berries from the fruiting patch every day or two so that they will always be fresh and none of them will go to waste.

To have clean fruit on fruit trees they must be sprayed. By this time, the operation should have been performed at least once, and better twice. Spray again immediately after the blossoms fall, particularly for the codling moth of the apple.

Few amateur gardeners possess a spray pump of any kind other than probably a little one for bucket attachment. Most home gardens are too small to warrant the purchasing of a large spray pump. The results of one season's spraying, however, would amply prove that it will pay three or four neighbors to get together and purchase a barrel pump jointly.

To have large fruit of the best quality

A Home-Grown Lemon

The tree on which this fruit grew is owned by Mrs. Geo. Korslake, Lumley, Ont. The fruit weighed 1¾ pounds and measured 8¾ inches from base to apex and 15 inches around horizontaliy. The photoghaph was taken by Mr. Jos. Senior, Exeter, Ont.

on our trees, it is necessary to thin the fruit when young on the branches. Remove enough fruits so as to leave those on the branches about six inches apart. Do this work after what is commonly called the "June drop."

Have you any home-made devices that make gardening easier? If so, send a brief description of them for publication in THE CANADIAN HORTICULTURIST, and thereby help others. A drawing or photograph also would be appreciated.

THE FLOWER GARDEN

Plant gladiolus bulbs in full exposure to the sun. Plant two to four inches deep according to the size of the corms and two to four inches apart in double rows which may be made as close as twelve inches in beds or borders.

Have a good variety of ann Among the best of them are salpigl eschscholtzia, scabiosa, schizan mignonette, calliopsis, balsam, zi poppy and many others. Among th plants for use on the edges of bo and flower plants are sweet aly candytuft and lobelia.

During hot weather, water the bed twice a day—at noon and at The pansy is one of the plants t not injured by watering under th sun. Give them water when they it most, and that is at mid-day.

If your sweet peas were sow trenches, commence filling in. To large flowers, disbud and allow few of the buds to grow to ma Water sweet peas often.

Plant dahlias and cannas. Re article on dahlias that appears o other page.

Get the window boxes ready a them in position as soon as dan frost is past. Hanging basket rustic stands also should be looked

Keep the perennial border well vated and clean. Pick off all when they commence to die.

Keep the walks and drives Keep the mower going on the Watch lawn weeds and use th frequently. Read the article about in lawns on another page.

Mushrooms

When and how is the proper ti way to plant mushroom spawn? Thi way I planted it. I dug a trenc eight inches deep and in this tre good heated horse manure and dug trench and put the clay from that t the manure and kept on that way had about eight square feet and the the spawn in (which I broke in pie the size of a hickory nut or larger a day or so I watered the bed wi warm water but they did not grow. M., Telfer, Ont.

I have had no experience in ing mushrooms in the open air. of the difficulty of maintaining a temperature and a uniformly pr gree of moisture in open air bed climate, I think that any suc tained would be more the result o or luck, than of skill or mana I would advise the amateur, wh to take up mushroom growing, cure some standard work on t ject, and study and follow carel directions given. Falconer's rooms, and How to Grow The standard work. It may be secu THE CANADIAN HORTICULTURIST f postpaid. Mushroom growing is fishing. There is enough un about it to make it fascinating, always profitable. — Thos. E Weston, Ont., President of the Vegetable Growers' Association

The Proper Fertilizers

ım at a loss to know what kind of ferti- is required for different varieties of rs and vegetables. My soil is a light and for three years I have been put- cow manure on it, as much as I could in, so that it is perhaps rich enough that fertilizer. But I do not know plants require lime or ashes or bone- and so forth, and therefore cannot he best results. Kindly give me the f vegetables for a small family garden :he kinds of nutriment each requires. you please tell me the kind of fertiliz- iich will best produce flowers.—C. E. ondon, Ont.

many cases it is quite impossible l what a soil is deficient in without imenting, that is, applying certain zers and noting the results obtained. egetables and flowers require three fertilizing materials, — nitrogen, horic acid and potash. A fourth be added, namely, lime, but this tuent is generally present in ordin- oil in sufficient quantity, although instances are known in which lime een proven to be deficient. Where s lacking, the effect of an applica- may be most readily observed gh the use of a small quantity on a plot.

garden crops, such as cab- , cauliflowers, celery, tomatoes, onions, carrots and potatoes, fer- ; applied at the following rates (in s per acre) have given good re-

bage, cauliflower, celery:—Nitro- n the form of nitrate of soda, 200- hosphoric acid in the form of sup- phate 400-600; potash, in the form iate of potash, 150-250.

s and carrots:—Nitrate of soda, superphosphate, 400; muriate of , 140.

atoes:—Nitrate of soda, 120; sup- phate, 400; muriate of potash,

ns:—Nitrate of soda, 100; super- ate, 500; muriate of potash, 160.

toes:—Nitrate of soda, 100; super- ate, 400; sulphate of potash, 200.

ill notice that in the case of pota- he sulphate of potash is used in- f the muriate form.

hree of the essential plant food in- ts must be applied to the soil in the proportions indicated in or- get the best results, but it must embered that no hard and fast rule given as to the quantities of fer- to apply; as these depend upon number of factors over which the r has no control.

r ordinary conditions fertilizers be applied sometime before seed- ept in the case of nitrate of soda. fertilizer is very soluble, and, e, liable to be washed out of the ore the crop is able to make use ne larger part of the application be made after the plants are out. The fertilizers should be sown broadcast either by hand or by a fertilizer distributor, and wherever possible harrowed in lightly. A further comment I would add here is that careful observation of the tests on his own garden will enable the producer to follow such a system of fertilizing as will give him the most satisfactory results.

For flowers or pot plants, it has been advised to apply the fertilizer in liquid form, as the plants have such a small soil space. In some cases good results have been obtained by simply applying the fertilizers and watering frequently. The following quantities per rod have, in some cases, given very satisfactory results: Three pounds of superphosphate, two pounds of sulphate of potash and two pounds of nitrate of soda.

For pot plants the following quantities may be tried: One part of nitrate of soda, two parts of acid phosphate, and one part of sulphate of potash. These should be applied once every fortnight or so at the rate of one-half to three-quarters of an ounce to the gallon of water.

In connection with these last quantities (namely, for flowers) I may say that the experimental work that has been done along this line has not sufficiently demonstrated the exact quantities of the materials to be used and I mention these amounts simply as an indication of what might be tried by way of experiment.—Prof. W. P. Gamble, Ontario Agricultural College.

The Time to Plant Ginseng

Ginseng growers recommend that ginseng be planted in the fall and not in spring. A number of enquiries about this point have been received by THE CANADIAN HORTICULTURIST. In reply to the question, Mr. J. E. Janelle, Caughnawaga, Que., writes as follows: "The spring season in Canada is not the proper time for ginseng planting. I would not recommend that seeds or plants be purchased in spring, particularly by beginners. Send your orders at any time, but they will be filled only in the fall."

The following letter was received from Mr. A. Twiner, Saugatuck, Mich: "Stratified ginseng seed planted in the fall will come up the following spring. When the plants first come up they resemble newly-sprouted beans, on account of having one little leaf stem and two leaves. During the first year, the plant attains a height of two or three inches. The work of the plant the first year, seems to be to develop the root and the bud at the top of the root, which produces the next season's stem and leaves. In the spring of the second year this bud produces a single straight stem which has two or three leaves on it and three leaves to a stem. During the second year, the plant grows four or five inches high. During the third year, the main stem has three leaf stems with generally five leaves to a stem, and the plant grows from six to nine inches in height. After the third year, some plants will have more leaf stems and leaves and they will grow higher. Last fall the writer dug a plant that was four feet one inch from the tip of the root to the top of the main stem."

Location for Ginseng

Would it be advisable to plant ginseng in the bush or woods? It is Nature's method. —H. R., Perth, Ont.

By planting ginseng in the bush it would have the natural shade, but let us see how it would work out in practice. Let us suppose that a farmer planted 1000 one-year-old roots in his wood-lot and, say, 1000 seeds. Now, nature has the birds and small animals, such as squirrels, to feed. These would be apt to take the larger share of the seed each year, and in the course of four or five years, there would be quite a number of young trees growing in that ginseng garden. We will imagine that farmer arriving in the bush some morning in September armed with a spade or fork to dig his ginseng. I think he would require an axe and pick to aid him to extract the ginseng out of a network of forest roots and bush. The orchard would be objectionable for similar reasons. The seeds would be exposed to the same enemies and the fruit falling on the beds would break the plants and the pickers would trample the beds more or less. Plant your ginseng at least fifteen feet away from trees. Tree roots rob the soil of moisture and plant food. Ginseng thrives better, grows larger and firmer and shrinks less in drying than wild roots. We can regulate artificial shade to suit existing conditions.—Wm. Gilgore, Peterboro, Ont.

Articles on the cost of growing an acre of tomatoes for the canning factory with profits are requested for publication.

The matter of drainage is very important in the market garden, for no soil, unless well drained, will yield satisfactory garden crops.

Gardeners in Canada, who have tested mulching with straw or other material between the rows of vegetables instead of cultivation, are requested to tell their opinions of the operation in a letter for publication in THE CANADIAN HORTICULTURIST.

Market gardeners in Quebec and the maritime provinces are requested to contribute articles for publication. Tell your experiences with the crop that you grow most extensively. State the condition of the market in your province, and the outlook. Send some photographs of your garden, if you can.

QUESTION AND ANSWER DEPARTMENT

Lowland Raspberry--Red Canada

1. In a recent issue, I saw the apple, Lowland Raspberry, recommended by an Ontario reader. In British Columbia, this variety is known as Liveland Raspberry, sometimes as Lievland Raspberry. Which is correct ?

2. The variety known here as Canada Red seems to be known elsewhere as Steele's Red Winter, Pomme de Fer, Roseau, etc. I would like to know by whom the latter name was given.—Pommier, Okanagan Valley, B.C.

1. The Lowland Raspberry is the name for this variety that is recognized by the American Pomological Society, whose decision is taken as authoritative. It is accepted also by Beach in the "Apples of New York." Woolverton's work, the "Fruits of Ontario," gives preference to the name, "Livland Raspberry." Like most varieties of apples, this one has a number of syonymous names.

2. According to Plumb in THE CANADIAN HORTICULTURIST, for 1895, and to Beach in the "Apples of New York," the Canada Red of Ontario is distinct from the Red Canada of western New York and some other fruit districts of the United States. The latter is known also as Steele's Red Winter. Plumb calls the Canada Red of Ontario, "Baltimore," and Beach, "Roseau." Beach describes Roseau as "A variety, known in portions of Ontario under the name of Red Canada or Canada Red, which is said to be quite different from the Red Canada of western New York. Waugh identifies this variety as the Roseau of Downing, and remarks that it is really an important apple. He states that it is known in some parts of Vermont as the Winesap and that it is the Pomme de Fer of Quebec. Plumb gives Flushing Spitzenburg as its correct name and calls it identical with the variety described by Downing under the name Baltimore. We have not had an opportunity of verifying the conclusions of either Waugh or Plumb with regard to this matter."

The following notes have been received from Mr. W. T. Macoun, Horticulturist, Central Experimental Farm, Ottawa:

"We have adopted the name Lowland Raspberry, following the nomenclature of the American Pomological Society. It is one of the best summer apples, if not the best, we have grown, and being very hardy, is especially desirable in the colder districts. Following are descriptions of Lowland Raspberry and Canada Red apples made by the writer:

" 'Lowland Raspberry (Livland Raspberry).—This variety is a native of Russia, and has been grown at the Central Experimental Farm since 1888. The tree is very hardy, and is a strong, moderately upright grower and a medium to good bearer. Fruit medium to large; roundish to oblate conic, angular; cavity medium depth, narrow; stem medium length to short, moderately stout; basin shallow, narrow, slightly wrinkled; calyx closed or partly open; pale yellow, waxy, more or less blotched, splashed and washed with bright red; dots few, pale yellow, indistinct; skin moderately thick, tender; flesh, white tinged with red, crisp, tender, juicy; core, medium to large, open; subacid, pleasant, good flavor; quality very good; season mid to late August. One of the best summer apples, especially for home use, but drops badly and ripens unevenly. Preferable to Red Astrachan in colder districts.

" 'Roseau (Canada Red, Pomme de Fer).—Origin unknown. Fruit medium to large, oblate, slightly conical; skin yellow, well splashed and washed with deep, rather dull red; dots fairly numerous, large, yellow, prominent; cavity deep, narrow; stem short, slender; basin narrow, shallow, slightly wrinkled; calyx small, partly open; flesh yellowish, tender, moderately juicy, mildly subacid with a pleasant but not high flavor; core of medium size; quality good; season midwinter to late winter. Tree a strong grower and has proved productive in some places, while a shy bearer in others.' "

Medicinal Plants

I wish to secure some information about medicinal plants that may be grown successfuly in Ontario. Can Belladonna or Hyoscyamus be grown here? They are grown in Great Britain and Germany. How about Rosmarinus, Sassafras, Hamamelis, Lactuca, Mentha viridis, Artemisia, Valeriana, Conium and Sambucus?—J.E.K., Lanark Co., Ont.

Atropa Belladonna grows in Europe and in Asia as far as India. It can be grown in Ontario. *Hyoscyamus niger* grows wild in Europe, Western Asia and the Himalayas. It has been naturalized in America and may be grown from seeds. The rosemary (*Rosmarinus officinalis*) is a shrub indigenous to the Mediterranean region and will grow in Ontario in well drained soil if protected. The tree, *Sassafras officinalis*, grows from Ontario to Florida and may be propagated by seed, suckers or root cuttings. Witch Hazel (*Hamamelis Virginiana*) also grows from Canada to Florida. It prefers a moist sandy or peaty soil and is propagated by seeds which germinate the second year or by layers. Spearmint (*Mentha spicata*), formerly known as *M. viridis*), is native to Europe and Asia. It will grow in Canada and is propagated by perennial root stalks. The question does not specify the species of Lactuca. The one that gives the sedative, lactucarium, is *Lactuca virosa*, native to Europe. Some wild American species also are gathered for medicinal purposes. The common garden lettuce belongs to this genus. The shrubby herb, wormwood (*Artemisia Absinthium*) is native to Europe. It is found here in old gardens and is propagated mostly by division. The medicinal valeriana is extracted from the roots of the *Valeriana officinalis*. It is native to Europe and northern Asia but it will grow anywhere. *Conium maculatum* is a European herb that has run wild in eastern North America. The European elder (*Sambucus nigra*) is a small tree and may be grown successfully in this province.

Yucca Filamentosa

Kindly give some information about the the care of the yucca.—W.M., Oshawa, Ont.

We presume that the yucca referred to is the *Yucca filamentosa*, which appears to be one of the hardiest species. The plants at the Central Experimental Farm bloom almost every year and it is rather surprising that the one in question has not bloomed. Yuccas require a rather warm soil, well drained. A sandy loam soil should be suitable if there is good drainage. It is a good practice to throw a few evergreen boughs over the yuccas in autumn to protect them from changes of temperature in winter. A box turned over them is also a good thing as it will often save many of the leaves and the plants will be stronger and more likely to bloom. We notice that some of the plants of the yucca do not bloom as freely as others, and it is possible that a new plant would bloom in a reasonable time.—W. T. Macoun.

Broad Beans

Why are my broad beans always a failure? They grow to be large plants, blossom, and then the leaves blight and become black. The pods never form.—R. T. W., Thorndale, Ont.

The broad bean or horse bean is affected with a blight disease in some parts of Canada. It is more injurious in the drier parts of Canada than in the maritime provinces where the air is moister. In some parts of the country the horse bean is not at all reliable on account of this disease. So far as I know, no remedies have been tried for controlling it.—W. T. Macoun, Central Experimental Farm, Ottawa.

The Canadian Horticulturist

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OFFICIAL ORGAN OF BRITISH COLUMBIA, ONTARIO QUEBEC, NEW BRUNSWICK AND PRINCE EDWARD ISLAND FRUIT GROWERS' ASSOCIATIONS

H. BRONSON COWAN, Manager Director
A. B. CUTTING, B.S.A., Editor

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6. Articles and Illustrations for publication will be thankfully received by the editor.

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Since the subscription price of The Canadian Horticulturist was reduced from $1.00 to 60 cents a year, the circulation has grown rapidly. The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with Dec., 1908. The figures given are exclusive of samples and spoiled copies, and of papers sent to advertisers. Some months, including the sample copies, from 10,000 to 12,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruit, flowers or vegetables.

January, 1908	7,650	January, 1909	9,456
February, 1908	7,821	February, 1909	9,310
March, 1908	8,056	March, 1909	9,405
April, 1908	8,250	April, 1909	9,482
May, 1908	8,573	May, 1909	9,172
June, 1908	8,840		
July, 1908	9,015		
August, 1908	9,070		
September, 1908	9,121		
October, 1908	9,215		
November, 1908	9,323		
December, 1908	9,400		
Total for the year	104,337		

Average each issue in 1907, 6,627
Average each issue in 1908, 8,695
(Increased circulation in one year 2,068)

Sworn detailed statements will be mailed upon application.

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EDITORIAL

DISAPPOINTING CONDITIONS

The Session of the Ontario Legislature which closed recently was not a very satisfactory one as far as those who are interested in the work of the horticultural societies of Ontario are concerned. The Legislature failed to increase the grant to Horticultural Societies from $8,000 to $10,000 as it had been requested to do by the societies through the Ontario Horticultural Association. Thus, although the membership of the horticultural societies this year will be almost double what it was a couple of years ago, the societies are forced to carry on their work with the old grant which is now so small as to seriously handicap the work of the societies.

In addition, the Legislature failed to pass a small grant of $100, that was given to the Ontario Horticultural Association by Hon. Mr. Monteith, to assist in carrying on its work. It was understood that this grant was to be continued from year to year. It is true that the grant is a small one, but nevertheless, it is needed by the Association which has to depend on the Government to a considerable extent for its financial support.

Furthermore, the legislature amended the Horticultural Societies' Act so as to limit the grant any society shall receive hereafter, to not over $800. This amendment will seriously restrict the work of the Ottawa and St. Catharines Horticultural Societies. These are the only two societies that so far have been entitled to such a grant. While $800 may seem a large grant, the principle involved in this legislation is a bad one. If the Government says that the larger cities shall not receive over $800, it should be consistent and say that the smaller cities shall not draw over, say, $600, the towns $400 and villages $200.

After a society secures a certain membership it is a very difficult matter for it to obtain additional members. Why then should a society be discouraged from obtaining additional members by the restricting o fits grant? A feature of this last amendment, which is most unsatisfactory, is, that it was passed without any intimation being given to the officers of the Ontario Horticultural Association. They should have been given an oportunity to make their views known to the Department.

The officers of the Horticultural Societies of Ontario represent the best classes of citizens in the cities, towns, and villages of the Province. They are public spirited to an unusual degree as they give their services in the cause of horticulture free of cost and often at great inconvenience and under discouraging circumstances. It is unfortunate, therefore, that the Legislature instead of granting the reasonable assistance required to still further encourage the work of the societies has taken action that will tend to discourage and hamper them.

JOURNALISM AT GUELPH

About ninety per cent. of the students that graduate after taking the full four years' course at the Ontario Agricultural College secure positions that demand ability and experience in public speaking or in writing and, in many cases, in both. The nature of the positions that are offered by agricultural colleges and high schools, experiment stations, departments of agriculture, agricultural publications and by other employers of these experts, requires men not only well informed in their respective branches of the profession, but also able to impart information in a competent and acceptable manner. During the past six or eight years, the Guelph college has given some instruction and practise in public speaking and much good has resulted. In the last annual report of the college the professor of English urges the appointment of an assistant who would be competent to take charge of the public speaking classes and to assist in the other branches of the English department. This recommendation should receive the favorable consideration of the Ontario government, and be acted upon before the college again opens next fall.

As a large number of Guelph graduates are now connected with the agricultural press of Canada and the United States, and as there will always be a demand for men qualified to fill such positions, we would suggest that classes in agricultural journalism be also made a branch of the department of English at the college. There is a wide difference between instruction in ordinary composition, which is invaluable in itself, and in journalism. The former is a necessary part of the education of every student and is of a more or less general nature; the latter embodies the former and includes further instruction of a special character—it is a business and a profession that requires distinctive training. At Guelph, where so many embryo journalists are trained, courses should be given in the history and principles of journalism, newspaper administration, illustration, photography, the libel law, news gathering, reporting, editorial writing and so forth, besides the academic branches of the study. Such instruction would be invaluable not only to students who may become journalists, but also to those who may accept other positions in professional agriculture and, by no means least, to those students who go back to the farms and who should be able to teach others by writing for the press. It would spread the gospel of good agriculture and good horticulture more rapidly. To make our agricultural college graduates even more efficient than they are, it would be in the interests of the college and of the country to have classes in agricultural journalism established at an early date. While this is a question more for the consideration of the college than of the government, it could have an important influence on the character of the appointment suggested by the professor of English.

Each co-operative fruit growers' association in the province should be represented at the annual meeting of the Co-operative Fruit Growers' of Ontario, to be held in Toronto on June 8. This organization is becoming stronger each year and is working in the interests of all persons connected with the co-operative handling of fruits. It should receive liberal and strong support.

We were given an opportunity last month of determining for ourselves whether or not Lake Erie apples are good keepers. Through the kindness of Mr. Jas. E. Johnson, of Simcoe, Ont., we received a basket of Spy apples which were apparently as firm and as beautiful as when picked. The flavor was excellent. As pointed out by Chief McNeill on another page of this issue, Lake Erie apples, properly grown, handled, packed and stored, will keep as well as those grown in any other part of the province.

The third annual report of the Horticultural Societies of Ontario contains much

valuable information. It has been well compiled and the illustrations are good. It is to be regretted, however, that the suggestion of the directors (see report, page 59, clause 6) that "the names of the persons whose homes and gardens are illustrated be published" was not observed more closely. Such information would have made the report even more valuable and interesting than it is.

The success of British Columbia fruit at the big apple show held at Spokane, Washington, last December should be an incentive to the fruit growers of all Canada. Britsh Columbia, particularly the Kelowna district, did much to advertise the fruit growing possibilities of that province. As plans are now being made for a larger exhibition and even a better one at Spokane next fall, all the fruit-growing provinces of the Dominion should plan to send exhibits. About fifty thousand dollars will be offered in prizes. Now is the time to start preparations. Prize-winning fruit comes only from orchards that are well-cared for from the beginning to the end of the season.

Arsenite of Soda

R. J. Messenger, Bridgetown, N. S.

The formula for preparing arsenite of soda is as follows: One pound of white arsenic (arsenious acid or arsenious oxide); four pounds of sal soda (washing soda or sodium carbonato); one gallon of water. To prevent confusion I have given the three names under which the first two ingredients are known. It is taken for granted that every one knows water. The sal soda should be in crystals, looking somewhat like borax. The arsenic is a heavy white powder like flour.

PREPARATION

Since the preparation of this poison is not a pleasant operation, it is taken for granted that enough will be prepared to last for the month or two of spraying. Take an old pot or boiler and clean it out. Put in the required number of gallons of water. Bring it to a boil or at least, make it hot, then pour in the sal soda and arsenic, stirring constantly until the liquid becomes clear. It is generally the color of very weak tea. Possibly some of this color is due to the iron from the vessel. Bottle or place in earthenware jugs.

Now this, like Paris green, is injurious to foliage if used alone, only this is much more corrosive. If used as an insecticide, first take two or three pounds of lime and put into a 40 gallon cask of water, then add a pint of the arsenite of soda If more poison is used more lime will be required.

If used with Bordeaux mixture no extra lime is necessary. Simply add to the mixture and stir thoroughly. I have used as high as a gallon of arsenite of soda with the 4-4-40 Bordeaux and had no injurious results from it, though it is better, if a gallon is used to add a little more lime.

I have used arsenite of soda for four years and find it more efficient, cheaper and better in every way than Paris green, arsenate of lead, or any other of the preparations on the market. A pint of this is equal to a quarter pound of pure Paris green. Keep it labelled "poison," and out of the way of the children.

I have just received a sample copy of THE CANADIAN HORTICULTURIST. It appears to be the best paper on horticulture that I have seen. Enclosed please find my subscription.—F. S. Carr, B. A., Edmonton, Alta.

PUBLISHERS' DESK

Maritime province readers of THE CANADIAN HORTICULTURIST, will find our July issue of particular interest and value. It will be devoted largely to matters of horticultural importance in Nova Scotia, New Brunswick and Prince Edward Island. While we endeavor to make each issue of our magazine of interest to our readers in all parts of Canada, it has been our custom occasionally to devote special numbers to the particular interests of one or more of the provinces. Last October, British Columbia was given special attention. The issues for November, December, January and February contained special articles for our readers in Alberta, Saskatchewan, Quebec and Manitoba, respectively. As the maritime provinces, particularly the Annapolis Valley of Nova Scotia, have long been recognized as a great fruit growing disrict, our July issue will be largely "maritime" in nature.

While an occasional issue is more or less specialized in matter, it is not done at the expense of material of general interest. Each and every issue of THE CANADIAN HORTICULTURIST is filled with articles, letters and news notes that may be read with profit by everybody.

The maritime province issue will contain, among other things, a number of articles on the work and progress of the model orchard experiment in Nova Scotia, and on fruit growing in the Annapolis Valley and other parts of that province. New Brunswick and Prince Edward Island will be treated likewise. Articles will appear also on market gardening, and on seaside lawns and gardens. Every person interested directly or indirectly in horticulture should read this issue. They should subscribe to THE CANADIAN HORTICULTURIST not only for this number but for the benefit that the paper will be to them from month to month. THE CANADIAN HORTICULTURIST is national in scope and in purpose.

The illustration on the front cover of this issue shows a part of the orchard of Mr. George Paton, Armstrong, B.C. It is situated on high land and the soil is a light sandy loam with limestone subsoil. The Wealthy apple does well in that locality. Other photographs of this nature from any fruit district in Canada will be welcomed for publication.

We would like to call the attention of our readers to the fact that the price of the "Big Four" combination of Canadian papers has been advanced from $1.70 to $2.00. The subscription price of one of the papers has been advanced from 50 cents to $1.00 a year, but the price of the combination has been advanced only 30 cents. You get a better bargain than ever.

How many of our subscribers have a friend who is interested in their flower garden, but who does not know about THE CANADIAN HORTICULTURIST? We receive many letters from persons who when subscribing say that they did not know of the existence of such a paper till by chance they saw a copy of THE CANADIAN HORTICULTURIST and at once subscribed for it. Read the following letter recently received: "I saw a copy of THE CANADIAN HORTICULTURIST for the first time about half an hour ago. It is the first time that I knew of the existence of such a paper. Enclosed please find my subscription for two years. I am glad that I discovered you." Some of your friends are just wishing for such a paper and do not know that there is one printed in Canada. Show them this copy. Send us the names of some of your friends who would like to see a copy.

Canadian Nurserymen

Editor, THE CANADIAN HORTICULTURIST:—I would respectfully call the Canadian Nurserymen's attention to the fact that we are compelled to pay a duty of 10 per cent. on apple, pear, plum, cherry, quince and peach seeds to grow seedling stock to propagate on, while seedlings of the same varieties are admitted free. Is this to encourage foreign growers?

If seedlings are to be admitted free, why should not the seed to produce this stock be also free and give the home nurseryman a chance to produce his own stock for propagation as cheap or cheaper than he can import it? Probably by calling the attention of the custom authorities at Ottawa to the matter, it would be regulated.—M. J. Henry, Vancouver, B.C.

Pointers on Spraying Pumps.— Since, to insure the most satisfactory results, spraying must be done within stated periods of a few days each, first-class spraying apparatus is essential to successful work. Frequently the loss of time and opportunity occasioned by the breaking down of cheap and unreliable outfits has resulted in a loss of money that equalled the cost of the spraying machine multiplied many times. As brass offers the most resistance to the chemical action of spraying liquids, it is therefore necessary that a sprayer have all parts of brass through which the liquid travels. It can be readily observed if careful machine work has been used in the construction of an outfit, by noting if all parts fit snugly, insuring minimum amount of wear, and also if the main castings are fairly smooth to the touch. To those interested in learning just what constitutes a first-class spraying outfit, The Deming Company, Salem, Ohio, will be pleased to forward a copy of their 1909 spray pump catalogue showing 24 varieties of hand and power outfits, including also a 12 page spraying chart, free of charge.

COMING EVENTS

Under this heading, notices of forthcoming exhibitions and meetings of horticultural importance will be published. Send the information as long in advance as possible.

CONVENTIONS.

Oka, Quebec Pomological Society, Aug 24-25
Toronto, Co-operative Fruit Growers of Ontario .....June 8.
Toronto, Ontario Fruit Growers' Association .....Nov. 10-11.
St. Catharines, American Pomological Society .....Sept. 14-16.

EXHIBITIONS.

Calgary, Alberta Provincial .....July 5-10.
Halifax, Nova Scotia Provincial, Sept. 2-10.
London, Ont., Western Fair..Sept. 10-18.
New Westminster .....Oct. 12-16.
Ottawa, Central Canada ....Sept. 10-18.
St. Catharines, Niagara Dist., Sept. 15-17.
Toronto, Canadian National, Aug. 26-..... .....Sept. 10.
Toronto, Ontario Horticultural, Nov. 9-13.
Victoria .....Sept. 20-25.
Winnipeg Industrial .....July 11-17.

Montreal Market Muskmelon Industry

William Stuart in Report of Vermont Agricultural Experiment Station

FOR years a few Canadian growers of this melon have enjoyed an almost exclusive control of the large eastern markets of the United States. These growers through carefully selected stock and skilful cultural methods, succeed in supplying excellent melons at fancy prices ($8-15 per dozen wholesale). The crop, however, is an expensive and precarious one to grow, owing to frequent recurrence of unfavorable seasons, and to the extreme care required to grow it succcessfully.

CULTURAL METHODS

The cultural methods employed by Montreal growers are essentially as follows: The seed is sown in the greenhouse or hotbed from late February to early April; later they are potted up into three or four inch pots, and when in danger of suffering for lack of root space and plant food and the weather is favorable they are removed to sash-covered frames, there to remain until they are almost fully grown. These hotbeds are well constructed, well exposed to the sun, and also protected from cold winds. The frames are often covered with two sets of sash, mats and board shutters. With such protection, if horse manure is used to generate a sufficient bottom heat and the exposed portions of the frame are banked therewith, the plants may be grown almost as well as in a greenhouse. These frames are movable sections approximately 12 x 6, strong and tight with tie rails for the sash to slide upon.

The soil over which these sections are set is ridged up in beds 12-16 feet wide with a one foot centre elevation. A trench is dug 2 feet wide, 15-18 inches deep, and filled almost level with well fermenting manure, and a portion of the surface soil thrown over it, slightly more being drawn in where the plants are to be set. The frames are then set in place and covered with sash, which in turn are further reinforced with mats and wooden shutters, or hay or straw with or without the shutters. A 4-6 foot space is allowed between the ends of each section. When the soil over the manure is well warmed up, the warmest portion of some favorable day is selected for planting. Great care is exercised now in transferring the plants from the hotbeds to guard against setbacks from sudden changes of temperature or soil conditions. The coddling process does not cease now. It is simply spread over a greater area and the plants require even closer care than before, for greater attention must be paid to watering, syringing and ventilation, success at this stage being very largely dependent thereon.

As the fruit attains size, it is usually lifted from the soil by a shingle or flat stone, to avoid loss from cracking, rot, etc. Uniform shape, color, netting and ripening is secured by turning the fruit every few days. When the runners fairly occupy the enclosed area the frames are opened a few inches. As the season advances, more and more air is admitted until, finally, when the melons are almost full grown, the sash and then the frames themselves are entirely removed.

A Field on the Island of Montreal Where Big Melons Grow
Plantation of Mr. T. J. Gorman, Outremont, Quebec

As each fruit sets its shoot is pinched off one or two joints beyond it. A 15-20 melon crop is considered sufficient from each 6x12 frame. Three or four hills are planted and usually two plants are set per hill.

The melons vary greatly in size. One weighing 44 pounds has been grown. The writer saw one weighing 22 pounds which had been selected for seed purposes. Their average weight ranges from 8 to 15 pounds, and a dozen averages from 120 to 130 pounds. In exceptional cases some have been shipped weighing 240 pounds per dozen package. The larger melons are apt to be poorer in quality than those weighing 8-15 pounds.

Two distinct types exist, a roundish oblate and an oblong, the first slightly deeper ribbed than the latter. These do not seem to be separated by the growers. It is not at all certain that either type is fixed.

A large wicker basket (clothes basket) is commonly employed in shipping to distant markets. They hold a dozen melons, packed in short, fine-stemmed hay, and are shipped without cover, no attempt being made to fasten the melons in place, the express company being held responsible for safe delivery.

A first hand study of this industry leads one to query as to the causes or reasons for the monopoly possessed by Montreal gardeners. American growers have tried to produce the crop, but apparently without continuous success. At any rate American grown melons of this variety cut no figure in eastern markets. Yet no valid reason appears why American growers should not succeed. Hence the following work was undertaken:

Cooperative work was undertaken with Mr. E. S. Brigham of St. Albans, seed secured from a Montreal grower and sown in the station greenhouse on April 12. Duplicate plantings by Mr. Brigham were made in berry baskets plunged in a hotbed and filled with a rich friable soil. Early in May the plants were shifted into four inch pots and, on May 24 were planted out at St. Albans. Owing to a lack of good fermenting manure no bottom heat was supplied; but an abundant dressing of well decomposed manure was used and the frames covered with sash. Owing to the lateness of the season it was thought unnecessary to cover the sash with mats, yet on the night of May 24 the mercury registered 28 degrees, F., and the weather during the next few days was unreasonably cool. This low temperature, coupled with a lack of bottom heat and of mats, severely chilled all portions of the vines near the glass. Growth was materially checked during this prolonged period of cool and cloudy weather, and the setback was never fully overcome.

The warmer weather of latter June entailed a fairly satisfactory growth. By July 30 some of the larger melons were beginning to net. The first ripe fruit was picked August 19, and from that period on several were harvested, mostly much undersized, weighing less than 8 pounds; some of good quality, others distinctly inferior.

The removal of the sash in late August and the heavy rains of early September induced rapid growth and much cracking of both skin and the flesh, thus affording favorable opportunity for disease. And on September 12 a few melons were found seriously affected by a soft rot, and two days later a large share of the fruit was found thus affected. The primary points of infection seemed to be those parts which were in contact with the soil or the object on which they were superimposed. Had they been turned frequently during the rainy period less loss would have occurred. The frequent and heavy September rains and cool weather favored the development of this disease and lowered the quality of the healthy melons and retarded the ripening period. Few really good fruit were secured after September 15.

SUMMARY

The Montreal grower succeeds only through the careful observance of the best cultural conditions. His success is, however, directly dependent on the weather conditions obtaining during the growing season. Cold, wet weather during the ripening period materially injures quality and retards ripening. Successful plantings, the first ones in late February or early March, extend the ripening period from mid-July to frost.

A crop which may net $1,000-$2,000 per acre is worth an effort to produce. Canadian growers seem unable to supply the American demand, even at $10 to $15 per dozen wholesale.

The experimental work at St. Albans was not successful. However, the knowledge

the handling of the crop justifies ption that there is no valid excuse tinuous failure on the part of Ameri- wrs to produce these melons success- fully. And to the end that a clearer idea of the reasons underlying success and failure may be attained, further work along these lines is contemplated.

FRUIT CROP PROSPECTS

the lateness of the season, fruit bushes have been backward in With the exception of peaches errics in some districts, a good uit is anticipated. Crop corres- f THE CANADIAN HORTICULTURIST ollows:

HANTS CO., N.S.

.—Trees have plenty of fruit soon to be positive about re- .D.

KING'S CO., N.S.

-Apple trees show every prospect ant bloom. All trees show little age from winter. Shrubs and ooking well. Strawberry plants not protected by covering are killed and are looking more or Those that were covered look .B.

.—The prospect is for a good oms.—J.N.F.

OLCHESTER CO., N.S.

uchess, Transparent and Weal- re promising. Canker is des- t other varieties. There is a blossoms on plums. Black cur- t so promising as usual. Red gooseberries are promising. sheltered and covered lightly in fall, came through fairly

NNAPOLIS CO., N.S.

—Trees came through the wint- There is promise of an abun- nd a good crop of fruit this a few brown tail moth nests nd in this section.—R.E.C.

Royal.—Fruit trees and bushes d the weather conditions at vorable.—G.E.C.

UMBERLAND CO., N.S.

ruit trees are not as far ad- this time last year, but show of fruit especially the early R.

MORELAND CO., N.B.

ruit trees and bushes have The prospect for bloom is

KINGS CO., N.B.

Fruit trees and small fruits, shes wintered in good condi- ts are good for blossoming ge crop.—D.A.P.

RRNVILLE CO., ONT.

Fruit trees of all kinds are ondition at present. Apples m. Trees that bore a medium are giving a full bloom in Indications point to a full is year.—H.J.

STINGS CO., ONT.

uit trees have wintered well ects for blossoms are good. aspberries, blackberries and good condition.—A.B.A.

TARIO CO., ONT.

dry weather last fall seems to have induced a very abundant formation of fruit buds, and we are expecting to see plenty of bloom.—J.H.H.

WENTWORTH CO., ONT.

Fruitland.—There was never a better show of bloom on nearly all kinds of fruit trees. Even peaches, that were reported nearly all killed, have plenty of bloom in many localities; in fact, nearly all. Plums could not be much fuller in bloom. Pear bloom is not all out yet but will be good and the same will apply to apples.—C.C.P.

Winona.—Peaches, pears, plums and cherries show signs of a heavy crop. Strawberries came through the winter well.—H.S.

LINCOLN CO., ONT.

St. Catharines.—Fruit trees are full of bloom, especially plum and cherry. Pears are not fully opened. Marlboro raspberry canes were badly killed back. Strawberries are good.—G.B.M.

Homer.—All fruit trees look well. Peaches are blooming fairly well, also European plums. Japanese plums will be very light, also pears. Apples promise a good bloom. Cherries are also good.—W.H.S.

Grimsby.—The prosepects for small fruits are good and also for nearly all tree fruits with the exception of some varieties of peaches in some localities. The cherry blossoms are very large and same may be said as to pears.—C.W.V.-D.

OXFORD CO., ONT.

Ingersoll.—Fruit trees and bushes are in fine shape; practically no injury from winter. Prospects are for an abundance of bloom especially on winter apple trees of all varieties.—J.C.H.

HALTON CO., ONT.

Burlington.—The prospect is good for all tree fruits except peaches; also for currants, gooseberries and raspberries. Strawberries wintered well and are full of promise, although the early bloom was blighted by cold. Duchess pears are very full and apple trees that bore heavily last year are blooming again.—W.V.H.

WELLAND CO., ONT.

Pelham Corners.—Raspberries and strawberries have wintered well and point toward a full crop. Same applies to all small fruits. In pears, Idaho is good; others, medium. Plums, Europeans, good in nearly all varieties; Japans, especially good. Peaches promise a fair crop. Cherries are exceptionally promising.—J.E.M.

KENT CO., ONT.

Chatham.—Plums and pears have lots of bloom as have the hardy peaches. Crosbys will give a small crop; Crawfords, Elbertas and others of their class, are a failure. Apple trees that bore a fair crop last year have no bloom while those that did not promise well. Strawberries came through the winter well. Gooseberries and currants are blooming full.—M.B.

SIMCOE CO., ONT.

Orillia.—The season so far has been very cold and backward. There is promise of good bloom on all fruit trees. Raspberries and small bush fruits promise very full crops, having come well through the winter. Strawberries do not look well; exceeding dryness of latter part of last season left them in poor condition, and a few heavy frosts since the snow went off were rather hard on them.—C.L.S.

LAMBTON CO., ONT.

Forest.—All fruits have wintered well and everything points to the crop being the same as two years ago.—A.L.

MACDONALD CO., MAN.

St. Charles.—Trees came through the winter in good condition. Damage and freezing back was less than usual, as far as we had time to observe. Truck gardening is very backward.—D.W.B.

KOOTENAY DISTRICT, B.C.

Crawford Bay.—The season is very late, Prospects for a good crop are very good.—H.S.G.

YALE-CARIBOO, B.C.

Lillooet.—The prospect for fruit trees and bushes are not as good as usual. There will be a fair crop of small fruits; cherries, about half a crop; peaches, nil; apples and pears, about half a crop.—J.S.B.

NEW WESTMINISTER CO., B.C.

Hammond.—Strawberries promise 50 per cent. of a crop; blackberries and raspberries, 80 per cent.; currants and gooseberries, full crop. Plums and apples promise well. There are practically no peaches this season.—C.P.M.

VICTORIA CO., B.C.

Victoria.—Cherries have suffered where exposed to recent cold winds. Bushes on the whole show good prospects. Strawberries, in some places, were injured by winds and frost but in more sheltered districts a good crop is looked for.—A.H.T.

Manitoba

George Batho

The spring has been very backward, but still a very satisfactory one from a horticultural standpoint. Three years ago we had an April of warm days with hard frosts at night, which damaged a great many tender —and some quite hardy—things. This year we had the April frosts at night, but the days did not warm up enough to cause even the most precocious plant to bud out, and so no growth whatever occurred until well into May. Even on May 19 the buds of such trees as the elm have scarcely begun to swell, although with the present warm weather they will be pushed out into leaf in a very few days. There does not seem to have been very much damage by winter killing. It is impossible as yet to say anything worth while in regard to the prospects for the fruit crop.

Arrangements are under way for another provincial horticultural exhibition in Winnipeg next fall. Prof. Bredrick, of the Manitoba Agricultural College, has been asked to assume the management, and a committee to work in conjunction with him has been selected.

For some time there has been talk of organizing throughout the city of Winnipeg a number of cottage gardeners' associations, each association to be restricted in its membership to a limited area in the city. Not a great deal has been actually accomplished in the way of organization, but no doubt the starting of such a movement would meet with a ready response as a keener interest in grounds adornment seems to be taking hold of the citizens of Winnipeg year by year.

Readers in Annapolis Valley, N.S., are requested to send contributions and photos.

NOTES FROM THE PROVINCES

Okanagan Valley, B.C.

Wm. Beattie

The peach crop will be very poor owing to the severe winter and particularly to the late spring frosts. In one orchard which I pruned in the first week of April I never saw a better show for fruit buds; to-day, there is not one to be found. Some of the orchards at the present have from 15 per cent. to 25 per cent. of the peach trees winter killed.

Apricots in general will be poor. Plums and cherries will have an average crop.

I have looked over one of the oldest apple orchards in Summerland, that of Mr. Jas. Gartrell. I find every prospect for a heavy crop.

At the time of writing I am pruning one of the largest peach orchards here. I can safely state that there will not be 20 per cent. of bearing trees having fruit on them. Also I find where irrigation has been kept up late in the fall, the trees, not having a chance to ripen up early enough, have suffered more so than others.

Kootenay Valley, B.C.

Edgar W. Dynes

It has been extremely difficult for those contemplating the planting of orchards to get enough nursery stock to supply their needs. Very much less stock was imported from Washington and Oregon than in former years, and although the output of the home nurseries is steadily increasing, they were unable to supply the unprecedented demand.

A good deal of interest centres in the strawberry crop. Reports from other districts indicate that the frost has done considerable damage, while in Hood River and Washington it is not expected that more than half a crop will be taken off. Such being the case, the prospects are that the growers in this section should receive a very good return for their strawberries, much better than in the two previous seasons.

All trees came through the winter well and only in rare instances do even peaches appear to have been killed. The heavy snowfall protects the trees and strawberries to a very large degree.

Some experimenting has been done with walnuts by a few of the growers but so far without success. They appear to be much too tender for this latitude.

Similkameen Valley, B.C.

J. D. Harkness

Early in the growing season there were many reports of damage to trees in the Similkameen and adjoining valleys from the unprecedentedly severe winter. As the season advanced, it became evident that there were a good many such cases, but it was also seen that in many instances mistaken diagnosis had been made owing to lateness of spring growth and to over-apprehension of the effects of winter. It may be said that, generally speaking, trees that have erly treated in every way cam sound and vigorous, and where to do so, it has been possible finger definitely on the cause. monly it is attributed to keeping tion too late in the fall, thus young growth so late that it to endure frost. That the wint ceptional was shown by the fact of alfalfa that have flourished series of years, were killed out a re-seeded; and as only one crop from them this year, instead four crops yielded in ordinary will be some local shortage of fo was considerable damage to s Present prospects, however, a for a good yield of peaches, ap plums and cherries except in a

The fruit grower is, or ought anxious over the knotty problem ing than over those of cultivat product he knows is his if he requisite skill and care. A good knows—the prairie market—is hu output. The really hard problem for solution is how to gather he distribute there, without incu loss through delay in hauling, lack of cooling, excessive charg men, and uneven distribution the needs of localities. It ca to advantage by individuals. out properly will require an as complete and a degree of e ity as high as is to be found est of industrial undertakings

Saskatchewa

A. H. Hanson

It is a little early to tell just trees and other shrubs have pass

Favorite steamers for all kinds of perishable cargo, having fan ventilation, cold storage and cool air chambers.

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S.S. "Laurentic," 15,340 tons
S.S. "Megantic," 15,000 tons

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S.S. Canada, June 12th
S.S. Laurentic, June 19th
S.S. Dominion, J
S.S. Megantic, Ju
S.S. Ottawa, July 10th

(All above steamers carry passengers.)

MONTREAL TO BRISTOL

S.S. Manxman, June 12th
S.S. Englishman, June 26th
S.S. Turcoman, J
S.S. Cornishman,

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winter, but judging from careful examination of the few that we had planted last year, they all appear to be in a very healthy condition. The buds are showing on all of the raspberries, blackberries, gooseberries and currant bushes. The strawberry plants appear to have done very well, and there is no sign of their being winter killed.

While we have many favorable conditions in this new country to warrant us in saying that in time a great many varieties of small fruits will be raised here in profusion, at the same time, it takes considerable education in order to bring more favorable results. The location of the Saskatchewan University and Agricultural College here will no doubt be a great factor in educating people along horticultural lines.

Saskatchewan

G. T. Barley

The prospects for all kinds of small fruits are good. The weather has been backward but heavy falls of snow this spring put the land in good conditon.

Tho bed of horticultural products, consisting of climbing roses, tea roses, spireas, syringa, carnations and grape vines, (a cut of which appeared in your paper last spring), has wintered all right and I expect a fine display this season. This shows me that we can have these things if we wish to take the trouble, and the expense of wintering would not be very much greater than it would be in any part of Eastern Canada.

Montreal

E. H. Wartman, Dominion Fruit Inspector

The first car of strawberries came to our auction room on April 28th. I emptied several boxes stamped "Imp. qt." and found each filled this measure well heaped; two boxes weighed two pounds, four ounces. The man well accustomed to the trade would understand these were heavy weights. Geo. Vipond & Co. has been the only firm in this city up to the present date, May 19th, who has received a full car; in fact, this firm was the first to bring a car to Canada this season. The trade is a venturesome one, many losses are made by fruit landing in poor condition. So far condition has been very good. Prices have been from 13 cents to 23 cents a box.

My personal observation in Jacques Cartier County of fruit trees show that the winter was not severe on the apple, cherry or plum, although they are late putting forth buds; will likely do well as we are past the date for frost or will when the bloom appears.

The tomatoes under glass at Macdonald College have been ripe since May 10th. The crop is an abundant one, and the quality far surpasses those from the south coming in car lots.

Although apples in store are getting scarce, still money could buy 1,000 barrels yet out of cold storage, largely of Spy variety. I saw a barrel, originally packed seven months from tree, opened on May 11, that really looked very inviting—solid, well colored, crisp; price asked was $8, or by the car $7, which is quite a good profit to a man who bought at $2.50. It is wonderful how long

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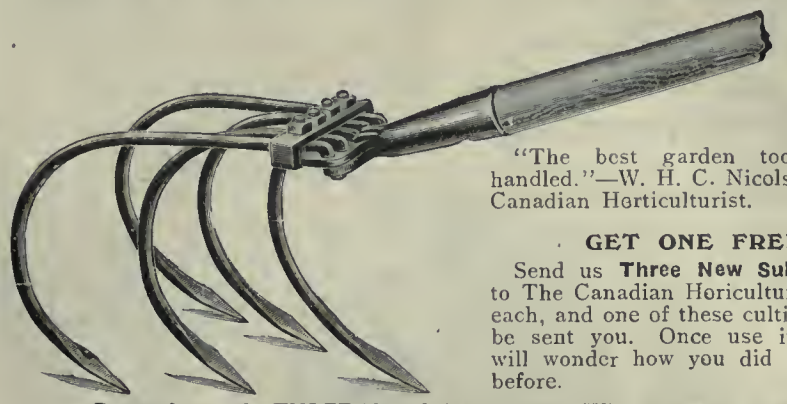

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Will protect you against this. They are **absolutely lightning, fire and weather proof—lightning, rain, snow** or **wind** are powerless against a roof covered with "Eastlake" Shingles. They can be cheaply and quickly laid by yourself, and will last a life time—roofs covered with "Eastlake" Steel Shingles **25 years ago** are in perfect condition to-day—**"THAT IS OUR GUARANTEE—A 25 YEAR ACTUAL TEST."**

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The Philosopher of Metal Town.

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Send us measurements of your barn or granary for our estimates. Our low prices will surprise you.

The Metallic Roofing Co Limited
TORONTO & WINNIPEG

our apples will keep if properly handled. The late Geo. Wright of Wanpoos, Ont., brought some apples to market once in July.

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"Buco" Hand Cultivator.
Bailey-Underwood Company, Ltd.
New Glasgow, N.S., Canada.

"Why," said buyers, "we have new apples in; yours cannot be any good." He said, "taste them," and they did and acknowledged that they were first-class. Now this gentleman had only a good cellar; temperatures were obtained by the opening or shutting of a window. The other fellow's apples did not keep so well, because probably he tied his picking basket to a limb and when he got up the tree, 10 feet above his basket, he forgot and said, "well, they won't hurt to drop in the basket." This fellow's apples rotted in December and he wonders how his neighbors can keep apples the year around.

Nova Scotia

Ennice Watts

The prospects for a good fruit crop are excellent. Apples, pears, plums, cherries and currants are loaded with blossom buds. Such an unusually heavy display of blossoms does not always indicate a heavy crop; the young fruits are more liable to drop unless there is an abundance of nourishment to carry them than when there are fewer flowers, and as yet we have to reckon with the June frosts if there are any to come.

Spraying is in full swing, and many more orchardists are being converted to the extent that they are buying spray pumps. The past and present conditions have been conducive to a good fruit crop. The summer was fairly dry and was succeeded by a mild winter and here we are with a backward spring.

Early peas are fit to cultivate. Asparagus, rhubarb, chives, mustard and cress are now very welcome after the long winter, but during the cold weather lettuce have been grown in greenhouses for which there seems to be an enormous demand; now, they are being followed by indoor cucumbers. Farmers make a great mistake by not having an asparagus bed; once planted, it is good for a lifetime and yields a luscious green vegetable before the trees are in leaf.

The brown-tail moth has again appeared in Nova Scotia. More than 200 nests have been taken in Bridgetown.

The rush for young fruit trees still continues, and nursery men cannot supply half the demand. Ornamental trees are also receiving their share of attention; everywhere there seems to be an increased tendency to beautify the homegrounds. When one man makes his surroundings pretty, the neighbors often try to copy; this competition makes it much better for the neighborhood.

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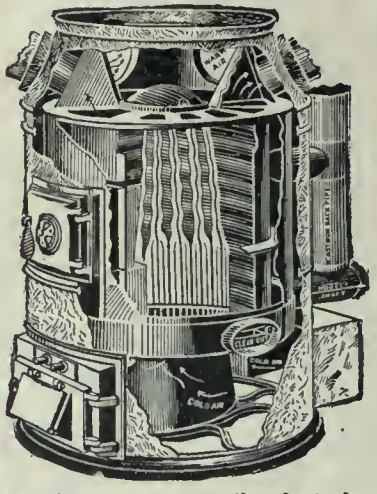

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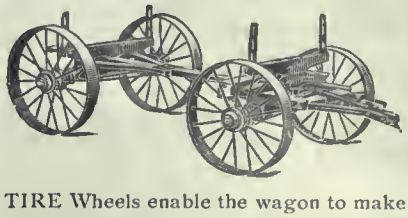

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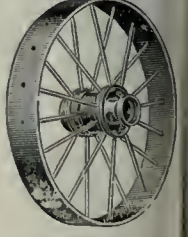

DOMINION WROUGHT IRON WHEEL CO., Limited, ORILLIA, ONTARIO

POULTRY DEPT.

Conducted by S. Short, Ottawa

Besides careful feeding, growing chickens require attention to see that they do not become affected with vermin at this season of the year. With the warm weather and plenty of good food, chickens make rapid development and nothing should be allowed to interfere with their progress towards maturity. The two main evils are lice and over-crowding. Lice may be checked and destroyed by the use of powdered sulphur or any of the insecticides recommended by the poultry supply house. Sulphur is cheap and effective. Dust each chick once a week until they are two months old and after that if the birds have access to dry earth or mud they will dust themselves often enough to keep down the lice. Putting sulphur in the dust bath is a convenient way to help keep the birds clean.

Over-crowding will be evidenced by some of the chicks not having down or plumage, all being rubbed off in the scramble for the warmest corner. An inspection of the sleeping quarters occasionally is a wise precaution. If the birds are all spread out side by side, though close together, they are doing all right, but if they are climbing one on top of the other, they are cold and trying to get into the inside place usually in a corner. If this happens the strongest or weakest should be removed and put in another pen. In flocks of 25 or 30 over-crowding seldom happens but with half-grown brooder chicks in larger flocks great care must be taken.

The leaving open of a window or a door a little late in the evening will sometimes do a lot a harm. I remember seeing 14 Leghorn chicks smothered to death by over-crowding in a flock of about 20 owing to a door being left open an hour late on a June evening last year and more would have been smothered had the omission not been discovered in time.

From experience, supported by the opinions of others who have given the subject some consideration, the writer recommends to those who hatch by incubator exclusively, that they hatch the chickens intended for next year's breeding stock by hens. This is a practice that is being followed by most of the careful breeders. It has been found that incubator-hatched and brooder-raised fowl are more given to barrenness or their eggs are more often infertile than the eggs from fowl hatched in the natural way. This is late in the year to make the suggestion, but it is worth remembering for future occasions.

Arsenite of Lime

F. T. Shutt, Chemist, Dominion Experimental Farms

From the number of letters that we have received during the past few weeks from orchardists, more especially in New Brunswick and Nova Scotia, it is evident that there is much confusion respecting the preparation of arsenite of lime. As a misunderstanding in this matter might lead to a very considerable loss through injury to the foliage, it is well that one or two of the essential points in the process should be explained and emphasized.

The first step in the process is the prepar-

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If you realize that your time is worth money to you then you will know that you cannot afford to run your farm without a telephone.

Just think it over and you will realize that a telephone is a greater necessity on the farm than it is in the city.

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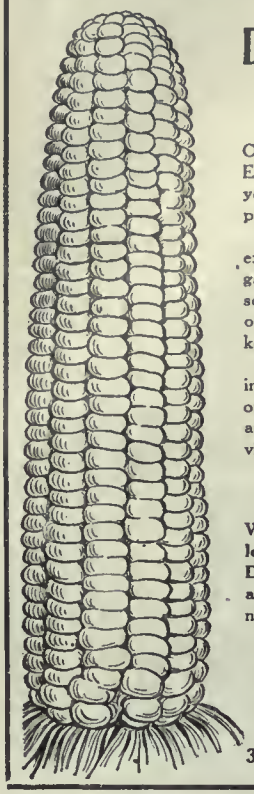

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ation of arsenite of soda by the boiling together of white arsenic and washing soda (carbonate of soda, in crystals). The proportions generally recommended are, white arsenic, one pound; washing soda, four pounds; water, one gallon. A few minutes' boiling usually suffices to dissolve the arsenic and soda, and the result is a solution of arsenic of soda. *This cannot be used as a spray*, as it is strongly corrosive and would very quickly strip the trees of their foliage. It must be converted into arsenic of lime.

The conversion of the arsenite of soda into arsenite of lime constitutes the second and very essential part of the process. It may be accomplished in one of two ways, as follows:

1. Thoroughly slake two pounds of good, fresh quick lime and stir into 40 gallons of water; then pour in, with constant stirring of the lime water, one pint of the arsenite of soda solution. The spray is ready for use immediately, as the formation of arsenite of lime takes place at once. This spray contains as much arsenic as one made by adding four ounces of Paris green to 40 gallons. The above proportions allow for a fair excess of lime, which serves the double purpose of preventing injury to foliage and of making visible the degree of thoroughness with which the spray has been applied.

WITH BORDEAUX MIXTURE.

2. This is the more common method as it allows the employment of a fungicide and insecticide in the one spray. Bordeaux mxture made according to the formula used so successfully for so many years (viz, 4:4:40) contains a sufficient excess of lime to allow the addition of one pint of arsenite of soda solution to a barrel of 40 gallons. All that is necessary is to simply pour the requisite quantity of arsenite of soda (one pint) into the barrel of Bordeaux, stirring meanwhile. We have now Bordeaux mixture containing as much arsenic as the "poisoned Bordeaux mixture," in which four ounces of Paris green per barrel has been used.

In conclusion, may I further emphasize the necessity of clearly distinguishing between arsenite of soda and arsenate of soda; it is the former that is used in the preparation of arsenite of lime (just described), and the latter which is necessary for making the arsenate of lead spray. Failure to recognize that there are these two classes of compounds—arsenites and arsenates—each with its own characteristics, has frequently resulted in loss and disappointment.

Secure our collection of five dahlia bulbs by securing one new subscription to THE CANADIAN HORTICULTURIST.

Circulars and pamphlets have been received from Benjamin Hammond, Fishkill-on-Hudson, N.Y. They tell about Slug-shot and other preparations for greenhouse, garden and orchard use. Write for copies.

At the annual meeting of the Fruit Growers' Association of Clarkson's and Lorne Park. Ont., the following officers were elected: Pres., L. A. Hamilton; 1st vice-pres., J. P. Stephens; 2nd vice-pres., John Manley; sec., W. G. Horne; treas., W. Clements; directors., R. Lush, C. Sproule, J. Lightfoot, R. Speck, Geo. Manley, G. Adamson and J. Pengelly. The various reports submitted showed the association to be in a highly prosperous condition and to be accomplishing an excellent work in furthering the interests of the fruit growers of that locality.

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Southern Ontario Apples

Editor, THE CANADIAN HORTICULTURIST: In your May issue, I notice a letter from Mr. J. A. Webster of Sparta, in which he says, "To refute the article (previously referred to) which coincides also with Chief McNeill's settled ideas, I will give the history of my apple crop of 1908."

I am not sure what 'ideas' were expressed in the article referred to, but I am very certain that in the history given by Mr. Webster he is refuting nothing that I ever said or thought, with reference to southern Ontario apples. Indeed, Mr. Webster has done with his apples just what I have advised many times during the last 10 years, whenever I have spoken of southern Ontario apples.

In addition to this, his results are just what I have predicted if this particular course should be followed. Let us consider the history of Mr. Webster's apples in detail. He packed his early apples in boxes and wrapped them in paper. I have been urging the use of boxes for the best grade of fruit for many years (see my Bulletin No. 19). Mr. Webster shipped these apples in refrigerator car and cold storage chamber. I have upon every possible occasion pointed out the advantages of cold chamber shipments, and have maintained that this is the only way to insure uniform success in shipping early fruit (see my Evidence before the Agricultural Committee of the House of Commons in 1905 and 1906-7.) The apples arrived in good condition, and sold for high prices. Again, these are the exact results I have predicted for all fruit shipped in this way.

Then as to his winter fruit. Mr. Webster picked the fruit carefully (no doubt), and got it into cold storage as soon as he could. Exactly what I have been urging upon all growers of winter apples in southern Ontario. I have even recommended St. John N.B., as a storage point, but any cold storage warehouse will be better than none. These winter apples reached the market in excellent condition, and brought high prices. I would have been very much surprised and chagrined had they not done so inasmuch as they had been treated just as I have recommended for southern apples.

Mr. Webster says that southern Ontario apples have high color, good flavor and "cold storage will keep them as good as those from anywhere else." Mr. Webster might also have said that the apples are of good size and that the trees bear abundantly. All these good things have I said with reference to southern Ontario apples, in common with Mr .Webster. How, then, does he make out that there is any difference of opinion between us? Mr. Webster has evidently been led into error, and when next he is told that I have misrepresented the good qualities of southern Ontario apples let him ask for date and page, and he will find that these cannot be given.

Once more let me express my opinion that southern Ontario can grow as large, as highly flavored and as highly colored apples as can be grown anywhere in Canada, and that the best grades of these apples can be handled with perfect success with the help of cold storage if they are wrapped in paper and packed in boxes, just as Mr. Webster has done. This surely will set at rest any insinuation of my want of appreciation of southern Ontario, the orchards of which I have been familiar with all my life.—A. McNeill, Chief, Fruit Division, Ottawa.

Letters on any horticultural topic are requested for publication.

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Export Apples in Boxes

Editor, THE CANADIAN HORTICULTURIST: From my observations in Great Britain, I believe that the best way to sell Ontario apples is to take them there and market them personally and stand behind every box and replace every box not satisfactory on seeing it yourself. Open and examine every box complained of. Sell faulty boxes for what they are worth, and set your price on every perfectly packed box, the top market price.

The auction system of Liverpool deserves the highest commendation. I would not say that it cannot be improved, but those auction brokers deserve great credit for having devised such a system of handling fruit. I sold nearly all my apples by auction and stood behind every box.

The dealers in Great Britain expect to get better apples from a box than from a barrel. First-class apples in what they want. For the good of our growers, we should give them long lines of every variety that we have to offer. Send the first quality all wrapped in paper and tiered in boxes, never unwrapped or rolled in loose. Our associations should have a representative in the Liverpool market to control the whole British trade and authorized to stand behind every package. Within four or five hours travel from Liverpool are practically all British markets including Glasgow and London.

Cold storage ought to be utilized at an ocean port in Canada. Cable can direct apples to any market. Cold storage ought also to be utilized as subsidiary at Liverpool, but not at London or Glasgow. I have not mentioned Manchester but I am afraid it is going soon to rival Liverpool as a distributing point for apples.

I agree with you in regard to branding

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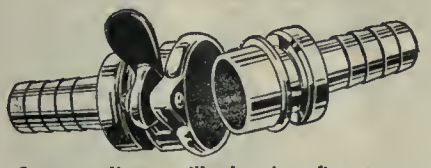
Ontario apples as such. "Canada" is too big to designate our apples. I would go further even and use also the name of the district as, "Lake Huron," "Georgian Bay," "Lake Erie," "Lake Ontario," and so on, similar to "Hood River," "Rogue River," and other districts in Oregon and the different valleys of Washington.—J. A. Webster, Sparta, Ont.

Paris Green vs. Arsenate of Lead.—In the search for good remedies for the potato bug nuisance, considerable controversy has arisen between those using Paris green and those who have adopted arsenate of lead, and doubtless results have fluctuated according to local conditions and the roughness of spraying. As a contribution to a controversy the following case was cited by a nurseryman of high standing which shows conclusively the results obtained from the two articles when used under similar circumstances and conditions. These results may be verified should any person so desire. "Potato bugs had become prevalent in a potato patch of an Ontario town and two-thirds of the patch was sprayed with arsenate of lead; then the supply became exhausted and the remainder was treated with Paris green. On the evening after the application a heavy shower of rain fell and in less than two days that part which had been treated with Paris green was nothing but stalks, the foliage having entirely disappeared. This part was again thoroughly gone over with Paris green but still the bugs seemed to thrive on this diet, and could be seen throughout the season, notwithstanding that a third spraying of Paris green was given. On the other hand that part on which the arsenate of lead had been sprayed, showed very few bugs and gave a good crop at the end of the season, and the white arsenate of lead could easily be seen adhering to the leaves on which it had been sprayed." Now, from this it will be seen that in a fair comparison of the two remedies, lead arsenate had far greater adhesive properties and consequently greater insecticidal value than Paris green. The people of this district, which by the way, is Prince Edward County, have taken note of this comparative test, and in the season now at hand, arsenate of lead will have a greatly enlarged market.

Rose Tausendschon.—This beautiful new German rose has attracted much attention since its introduction, and it is undoubedly one of the best varieties sent out during the last decade. As to its complete hardiness in the north, we cannot yet speak with absolute certainty, but it is claimed for it that 10 to 15 degrees below zero has left it unscathed. This being so, it can fairly be placed in the same class as the various ramblers. No more lovely climbing rose for



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Savings Department—Interest allowed on deposits at current rate from date of deposit.

pillars, arches and pergolas has ever been sent out. The flowers are larger than those of Clothilde Soupert, and similar in color, being pink when opening and a beautiful rosy carmine when fully expanded. The clusters are large, and the small number of thorns, as compared with other ramblers, is another point in its favor. See the advertisement of Brown Brothers, Nurserymen, on another page of this issue.

Merger of Nurserymen.—The *Canadian Gazette* announces the incorporation of Luke Brothers, Limited, Montreal, formerly Luke Brothers Company. The partnership composing the latter has been registered since March, 1896. The charter issued by the Federal Government to the new corporation is dated March 30th, 1909. The following firms have been absorbed: Capital Nursery Company, Ottawa; Jacques Cartier Nursery Company, Montreal; Quebec Nursery Company, Rougemont.- The consolidation gives the new corporation one of the largest forces of agents operated by any firm or company in America. The head office will be in Montreal. The capital is $100.00. S. M. Luke has been elected president and E. B. Luke, vice-president.

FOR SALE AND WANT ADVERTISEMENTS

WANTED.—Persons to grow mushrooms for us at home. Waste space in cellar, garden or farm can be made to yield $15 to $25 per week. Send for illustrated booklet and full particulars. Montreal Supply Co., Montreal.

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BRITISH COLUMBIA LANDS.—Handsomely illustrated catalogue of apple and farm lands in B. C. Mild climate, rich soil, cheap lands. Write F. J. Hart & Co., Limited, Vancouver. Established 1891.

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FOR SALE.—Coleus, in 2½ in. pots, in 12 varieties, 50 cents a dozen; asters, in boxes, 10 cents; stocks, 10 cents; alyssum, 10 cents; petunias, 10 cents; ageratum, 10 cents; mignonette, 10 cents; cobeas, in 3 in. pots, 60 cents, geranium Nutt, in 4 in. pots, $1; Earliana tomatoes, in boxes, $7 per 1.000.—J. Wood, Floral Dept., Model Farm, Weston, Ont.

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38

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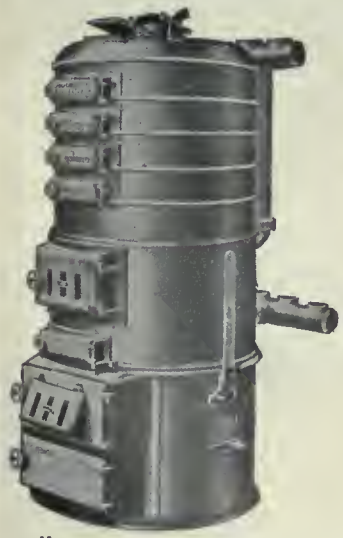

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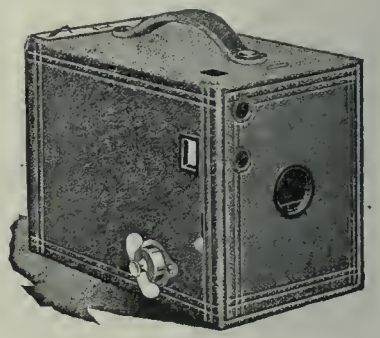

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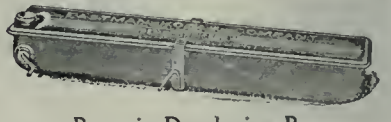

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The Canadian Horticulturist

Vol. XXXII JULY, 1909 No. 7

A Decade of Nova Scotia Horticulture

R. J. Messenger, Bridgetown

THE last ten years covers almost all the history of *advanced* horticulture in the province, mainly commercial apple growing and marketing. All over the Annapolis Valley are trees that must be able to tell tales of two or three centuries. These are called "French" trees by the farmers now, and how much of truth attaches to the term it is impossible to say. Many of these trees still bear small, bitter-sweet or very acid fruit, that is made into cider, and many have been and are still being grafted to commercial varieties. Up to thirty years ago, very little fruit found its way out of the province. The opening of the English market gave the great incentive to commercial fruit growing, and the Annapolis Valley has always kept the lead of the maritime provinces in this industry. A great many orchards were giving a good yield of apples of good varieties. As a proof of the good judgment of these old orchardists, it may be said that a list of about a dozen of the most popular commercial varieties of twenty-five years ago, is almost identical with a list decided upon at a meeting of the Fruit Growers' Association of Nova Scotia only three years ago.

THE PIONEERS

Among the pioneers of successful orcharding may be mentioned the names of Starr, Archibald, DeWitt and others, in King's county. To such men as these we owe the opening of trade across the water. But while these old orchards gave crops of good apples that were barrelled and exported to a small extent, the real awakening of thoughtful care and practice of intelligent methods has its history in the last ten or fifteen years. Before that, the great majority of orchards were expected to raise a crop of apples as well as an inter-tilled crop of potatoes or turnips and it is a fact worthy of note that a measure of success attended this practice which is still kept up in many orchards, especially those of young bearing age. Now, however, the best orchardists practice only clean thorough cultivation with cover crops of nitrogen-gathering plants.

PRUNING

The pruning of years ago left long bare limbs with a limited bearing area at the top. Now, the younger men are producing a tree capable of bearing fruit uniformly throughout its whole volume of top.

PROGRESS IN SPRAYING

Spraying came next, and it is safe to say that ninety per cent. of the spraying done to-day has been begun in the last decade. The spraying of a dozen years ago was almost too crude to be called by the name in comparison with that of to-day. You could wash wagons and windows with the nozzles of that time, while now we get a mist almost like fog.

The varieties of fungicides and insecticides are becoming legion, and farmers are found willing to try every new one that comes along. Bordeaux mixture is becoming old-fashioned but is still holding its own. An advance in the last few years is the application of winter sprays, of which the lime-sulphur wash promises to be a favorite. The prepared lime-sulphur is in use in some parts of the Valley.

Is Deserving

I am glad to learn that it is the intention of the management of THE CANADIAN HORTICULTURIST to make the magazine of even more value and interest to its readers in the Maritime Provinces than it has been in the past. THE CANADIAN HORTICULTURIST deserves the best praise that has been bestowed upon it.—Prof. Percy J. Shaw, Agricultural College, Truro, N. S.

PACKING AND MARKETTING

The packing and marketting of fruit is making great advances. The Fruit Marks Act has had the indirect effect of improving the quality by inciting the farmers to better methods, and the direct effect of making them pack better fruit. Box packing is a part of this decade's progress, is increasing every year, and bids fair in the next ten years to become an important factor in packing.

Under marketting, we have in common with other parts of the Dominion made progress in transportation facilities. The method of having fruit sold by commission merchants is much the same as at first but the organization of co-operative companies will, we hope, give direct buyers confidence to purchase from these associations outright. This has been done already.

Educational advancement has also been rapid. The Nova Scotia Fruit Growers' Association is a live body conducted and attended by the most intelligent men in the business. Year after year experts from all over the continent are giving us the benefit of the latest discoveries and successful practice, while the Institute speakers carry up-to-date knowledge to those not reached by the associations. The introduction and supervision of "model orchards" by the government is doing a great work in teaching methods, while horticulture is given a prominent place in the teaching of the Agriculture College at Truro.

While space will only allow of this brief sketch, it is enough to show that the last decade has accomplished more for this branch of country work than the hundred years before, and *we are just beginning.*

Arsenate of Lead

"Arsenate of lead is a much better poison for spraying on fruit trees than Paris green," said Mr. W. H. French, of Oshawa, to a representative of THE CANADIAN HORTICULTURIST, who visited that district last month. "It gives much better results as it remains in suspension longer and will not injure the foliage in any way.

"I find that it will kill 95% of codling moth while Paris green at its best, will not kill more than 75%. Arsenate of lead will remain on the foliage much longer than Paris green and, therefore, is effective for a longer time. It is a little more expensive but the difference in results easily makes up for that. I use five pounds to 100 gallons of water. To spray 300 trees costs me about $1.75 more than it would for Paris green."

As this issue is pressed for space by articles from horticulturists in the maritime provinces, it has been found necessary to leave until next time the continuation of Professor Lochhead's excellent article on "The Principles of Plant Breeding."

Dwarf apple trees are produced by working upon slow-growing stock and by subsequent heading-in.

The More Tender Fruits in Nova Scotia

Ralph S. Eaton, Hillcrest Orchards, Kentville

IN Nova Scotia, as in Ontario and most parts of the United States, the Japan plums have not been the success anticipated when they were first sold freely to growers. Even the Burbank, undoubtedly the best of the Japanese with us, has been most disappointing during last three years, and some small blocks of Burbank of splendid growth, from seven to ten years old, have not borne a crop. The writer, who has about 4,000 "Japs," took the precaution to interplant fairly thoroughly the Red June and Abundance among the Burbank but though, with the exception of last three years, the crop of Burbank has been satisfactory, there is no proof of special virtue in the interplanting, as the Red June will usually bloom from three to six days ahead of Burbank. The cold, rainy weather during blossoming period has probably been the cause of failure for these seasons. At present, the prospects for this year are excellent.

Packing Japanese Plums at Hillcrest Orchards, Nova Scotia

The Red June is quite apt to drop its leaves in midsummer which causes the fruit to follow soon after. The wood of the Wickson variety will not stand our winters and the October Purple has so far not been a satisfactory bearer. The Chabot was liked by one or two who fruited it for two seasons. The Japans will not be planted much more in Nova Scotia unless this season's experience changes the feeling towards them. Such European varieties as Reine Claude, Monarch, Grand Duke, Coe's Golden Drop, and even Lombard, are more popular, and the old Magnum Bonum is still a great favorite.

It has never been considered practical to transplant fillers of apple, cherry or plums after the more permanent trees begin to crowd them. The writer probably stands alone among orchardists in his faith in the practicability of this work but, after transplanting 200 plum trees, eight to twelve years old, two seasons ago, after they had borne their third or fourth heavy crop, and now have a prospect of from one to two bushels of plums per tree this year, bringing them nearly, if not quite, up even with those of same variety and position not transplanted, and this with but hardly one per cent. loss, he is confident that it is practicable. Equal success in transplanting large numbers of apple and cherry trees of same age, places this work beyond any question of experiment and in the writer's opinion settles the oft-discussed point of the advisability of planting fillers.

PEACHES AND APRICOTS

Quite an interest was taken in peaches six to ten years ago, the most popular varieties being Early Crawford, Alexander, Hynes' Surprise, Mountain Rose with some Elbertas, Fitzgeralds and Crosbys.

Alexander and Hyne's Surprise are apt to rot before ready to pick and are now discounted. Some fine specimens of Early Crawford, Fitzgerald and Crosby are frequently shown at exhibitions, but few orchardists have the desire to grow peaches on a commercial scale.

Some lovely specimens of apricots have occasionally been grown here and, though the trees usually blossom well, the fruit seems to drop soon after it forms.

CHERRIES

Nova Scotia is splendidly adapted to cherries. Gov. Wood, Windsor, Black Tartarian and Black Eagle seem to be the best bearers among the sweet varieties. Yellow Spanish and some others have proved shy bearers. Schmidtz' Bigarreau is a beautiful hardy cherry and fair bearer but the fruit will not stand up well for shipping. Amongst the sour cherries, the Early Richmonds, English Morello and Montmorency, are the best, the last standing away ahead as a commercial sort, and is the best money maker of all varieties grown here; it will stay on the trees a week after it might be thought ready to pick and then stand three to four days of shipment.

My Model Orchard Methods

Herman M. Rice, Bear River, N. S.

Being situated west of, and nearer the Atlantic Ocean fogs, than that great fruit district of Nova Scotia, the Cornwallis Valley, Digby county is but in its infancy as a fruit-producing territory; yet I notice each year at the provincial exhibitions that we are producing apples and pears that compare favorably with the rest of the province and plums and peaches unexcelled by any competitors.

My old orchard of three and one-half acres, set out twenty years ago, was made up of all kinds of apple trees, being a job lot which my father took as a little better than nothing for a bad debt. As I have had to graft many trees, the orchard is not in full bearing yet; however, some trees of the Spy variety have yielded as high as nine barrels per tree, with Ben Davis not far behind.

The younger trees shown in the illustration, are in the government model orchard and were set in May, 1903. This orchard covers two acres and the trees are set thirty-five feet each way, with plum, pear, cherry, or peach as fillers in the rows one way; these fillers are bearing considerable fruit already.

We spray with Bordeaux mixture three times each year and cultivate as follows: Early as the season permits, we plow and then harrow every week until July 1st, when we give a light top dressing of barnyard manure and wood ashes, and seed to clover a space four feet on each side of trees. The remainder is planted to roots and vegetables. The clover serves to check the new growth, and allows it to harden, as well as provides a protection for the roots in winter and supplies humus and nitrogen when turned under the following spring. We prune off one third of the new growth each April, thereby causing the trunk to develop and fruit spurs to form. The man in the picture is a six-footer, so the trees do not show up too badly for five years' growth.

Fruit Growing in Eastern Nova Scotia

Andrew MacPherson, Rocklin

EVERYONE who is interested in fruit growing has heard of and many have seen the Annapolis and Cornwallis Valleys in Nova Scotia and, when apples are mentioned in connection with the province, those districts are supposed to contain all that is worth mentioning in the shape of fruit and when the various institute speakers from this so-called "fruit belt" go ahead, they cannot disguise a sort of sympathetic pity for those that are trying to grow fruit under conditions more adverse than is to be met with in their own beloved valleys.

Up to a few years ago, no one ventured to dispute the theory that the Valleys were "it," as far as fruit and all that belongeth thereto was concerned, but when the late B. W. Chipman was appointed Secretary for Agriculture he conceived the idea of establishing model or experimental orchards in each county of the province outside of the fruit belt. Prof. F. C. Sears, who was then director of horticulture, and Mr. Chipman travelled over the province and observed that in many other localities fruit of equally high quality was grown. This was noticeable particularly in Pictou and Antigonish counties, which are in the eastern part of the province. Professor Sears told the writer that he never saw a better display of fruit, chiefly apples, than was to be seen at Pictou County Exhibition of 1905. But what contributed more than anything else to the idea of experimetnal orchards was the fact that varieties that succeeded best in one district did not succeed so well in another, and instead of selecting and holding to the variety that does the best, too often the farmer allowed the tree agent to select for him, and this was done without any regard for environment, and the result was confusion.

A farmer who had perhaps a half acre or, say, one acre in orchard had perhaps a dozen different varieties growing there. Great care would be taken of this orchard for a few years and when the time for fruit arrived and no fruit appeared or, if fruit, not the kind that was expected, the owner of the orchard got careless and allowed the grass to grow, with the result in a short time the owner cut down the few trees that had not died already, saying that they were in the way of the mowing machine. To select the varieties that are likely to do best in a district under a ten year exepriment, is the idea of the model orchard. The experiment is carried on under Government supervision about as follows:

A Government Spraying Demonstration in a Nova Scotia Orchard
Photograph kindly furnished by Mr. G. H. Vroom, Dominion Fruit Inspector.

THE MODEL ORCHARD METHOD.

A plot of land of about two acres is selected. The trees are set out thirty-three feet apart each way and fillers in between, thus the trees are sixteen and a half feet by thirty-three feet apart. The fillers consist of plum, pear and cherry trees. A strip of land eight feet wide is left at every row of trees. This is cultivated until the middle of July when each strip is then seeded to a cover crop of clover, rape or vetches, to be plowed under the following spring and the same plan followed.

Now as to results. First.—Varieties that are succeeding best in the model orchard are the ones generally selected in that neighborhood with equally good results.

Second.—The idea is losing ground, that an apple orchard in order to be profitable must necessarily raise a crop of hay or grain. In the model orchard no such crop is permissable, but a cultivated crop, such as corn, potatoes, turnips or something similar, is allowed.

Third.—The value of a clean cultivated orchard is observed, if best results are to be obtained.

One of the maxims laid down by Professor Sears when setting out these orchards was, "Make haste slowly," and in some cases the advice was needed as the desire to have the best orchard led to an undue forcing, by heavy manuring, causing intense wood growth with the usual result of winter-killing during severe winters.

Judging from the experience of the

One of the Model Orchards in Nova Scotia that are Destined to Stimulate Fruit Growing in that Province
Orchard of Mr. H. M. Rico, Bear River, Digby County

past fifteen years, five of which was in connection with an experimental orchard in eastern Nova Scotia, and in answer to the oft-repeated question as to what varieties for the average farmer to plant for home use, and to sell the surplus in the local market, I have no hesitation in recommending the following as among the best: For early, Yellow Transparent, Red Astrachan and Duchess, in order named; fall and early winter, Wealthy, Longfield and Fameuse, with Wolf River sandwiched in; for winter, Golden Russet, Spy and King, all good quality apples, and if anyone is far sighted enough to provide for a continued supply until the new crop comes, let him plant Ben Davis.

As to the prospect for the future, eastern Nova Scotia has the best local market in the world; a market that is not nearly supplied with the home grown product; a market that is yearly growing and every year demanding better apples and more of them. Why do not our farmers rise to the occasion and endeavor to supply this market, and also provide for their own table that most healthful of all fruits, the Nova Scotia apple?

A Nova Scotian's Experience with Cultivation

Edwin J. Tucker, Middleton

THE article in the May number of THE CANADIAN HORTICULTURIST entitled "An Earth Mulch for Root protection," by Mr. J. A. Johnson, of Grimsby, Ontario, should be of special interest to orchardists in Nova Scotia, inasmuch as the methods of cultivation advocated therein have, in part, been followed for years by our farmer orchardists. Shallow foll plowing has for farmers the advantage of the cover crop in that it is done when the rush of work is over for the season. In my observations of the effect upon trees in this part of Nova Scotia where climatic conditions are different from Ontario, I haev seen, so far as winter killing of trees is concerned, no material difference in the two methods.

Whether cover crops are sown in the orchard or not, I do not approve of a later cultivation than the middle of July. Having here an abundance of moisture in most soils, too late cultivation induces late growth which leaves tender wood not fully matured or ripened and, in almost every instance that has come under my notice of August or September cultivations followed by an ordinarily severe winter, there has been more or less winter killing of trees so that the matter of winter killing with us seems to be not so much a question of "earth mulch" or "cover crop" as it is of early or late cultivation.

In my own orchard I have followed two methods of early cultivation, being governed largely by soil conditions. Whether fall plowed or not, cultivation is always commenced as soon as the land permits in spring, usually early in May, and is continued at intervals of a week or ten days, using disk and spring tooth harrows until not later than the middle of July, having first plowed the portions sown to cover crops. If I intend to fall fall, I then seed to buckwheat which is mowed before ripening and left in the orchard. This serves the purpose of a cover crop during the fall months, namely, the taking up of excess soil moisture and inducing early ripening of wood growth, thus preventing winter killing. In October or November, everything is

A Convenient Spraying Outfit

Planned and used by Mr. R. J. Messenger, Bridgetown, N. S. It can be placed as close to the trees as the horse can go. A platform around the barrel can be used for spraying high trees. This rig is a useful one for small orchards.

plowed under; and right here comes one of the chief claims of the advocates of fall plowing, that the leaves being plowed under, the black spot and other fungus, as well as numerous insect pests, are the more easily controlled or held in check.

In the part of the orchard in which I use cover crops, I sow clover or vetch in July and polw as early as possible the following spring, always puting them on land deficient in humus or subject to wash badly in winter and spring, which explains why I practice two systems of orchard cultivation.

I can also see no appreciable difference between the two methods, so far as winter killing is concerned, but I fall plow as much as is found practicable in order that the spring's work may be lessened by just that amount. I would especially urge thorough cultivation from early spring until July, when all cultivation should cease as, in my experience, I have never lost a tree by winter killing when either of the methods outlined has been followed, while I have almost invariably had some dead trees when cultivated into August.

Reclaiming a Cranberry Bog

Would it be worth while to try and start a cranberry bog from a wild patch that appears to be well located?—R. M., Canning, N.S.

It is quite likely that the wild cranberry patch could be utilized, but to get the best results it would be necessary to clean out the sod, shrubs and anything else that is growing in the patch except the cranberries. The quantity of cranberries should determine whether it would be worth while doing the work suggested or not.

The Wonderberry

Of what value is the Wonderberry that is being introduced this season?—H. P., Sherbrooke, Que.

From its description, the Wonderberry appears to be very similar to the so-called garden huckleberry, which was introduced a few years ago. The garden huckleberry is a variety of the nightshade, *Solanum nigrum*, a garden weed. We have grown it at the Central Experimental Farm, and it is very productive, The fruit is not palatable when raw and was not relished when cooked, although we understand that when cooked according to other recipes the flavor is good. However, it is not a fruit which will be generally grown where other well-known fruits succeed. — W. T. Macoun, Central Experimental Farm, Ottawa.

Paying for Apple Trees

Am I obliged to pay for apple trees that were delivered at my home that are not first-class. They are inferior, crooked, scurfed and one is dead. There were two varieties ordered. One is McIntosh Red; the other is Wolf River. The Wolf River package was labelled, but from the otber lot the labels had been torn off, all but the wires. My duplicate says "first-class" across the face.—H.B., Lovett, Ont.

The fact that all the trees are not labelled, will not relieve you from liability to pay, unless you can show that the trees are not of the kind ordered. You are, however, entitled to a good merchantable article, of such quality as dealers are accustomed to send out, and if the trees are of an inferior quality, you will not be liable to pay for them, unless (a) there is some special provision in your contract which relieves the vendor, or (b) you have actually accepted the trees.—Answered by our legal adviser.

Send articles on making and handling a cranberry bog.

Notes on Culture of Asters

C. M. Bezzo, Berlin, Ontario

TO grow asters successfully, there are, in addition to rich soil, two things absolutely necessary; they are, thorough tilling of the soil during the early stages of growth and frequent waterings during dry, hot weather, especially during the blooming period. As soon after each rain, or watering with the hose or watering pot, as can be done without the ground sticking, the surface soil should be loosened with a hoe or small rake to a depth of one and one-half to two inches. Care should be taken, however, not to hoe too closely to the plant at this depth as the aster throws out roots very close to the surface of the soil. This constant loosening of the surface soil not only prevents the formation of a crust which would exclude the air and smother the roots, but it enables the plants to draw up moisture from below. It also enables the roots to strike down deeper, reducing the danger of uprooting by wind; while cutworms, wireworms and other like enemies can find no abiding place in the ground that is constantly stirred.

Asters should never be allowed to suffer in the least from the want of water. Water in the evenings unless the nights are very cool, in which case, if the hose is used, the water had better be done in the morning. But water any time, morning, noon or night, in any kind of weather, rather than have them suffer from thirst. The plants when watered should never be merely sprinkled, but the ground should always be thoroughly soaked. During the blooming period the aster consumes a lot of water and it is almost safe to advise watering them every day.

If the plants are massed and have become so large as to render dangerous the operation of hoeing, a two inch mulch of straw, grass clippings or half rotted manure shaken up finely will be or great benefit in keeping the ground cool and moist.

To grow the finest bloom for exhibition purposes, pinch out the central bud when the plants begin to branch, and allow only about six of the side branches to grow, removing all the lateral buds and branches. The whole strength of the plant is thus given to the development of the half dozen flowers. See that the plants have an abundance of plant food in a soluble form. Sheep manure is a safe and convenient fertilizer and may be hoed in about the plants, or dissolved in water and poured about the roots. Nitrate of soda is a powerful stimulate, but the greatest care must be exercised in its use. Broadcast it evenly upon the ground, at the rate of one pound to the square rod, just previous to watering, being careful not to put any of the soda on the leaves. When used in above quantity four or five applications may safely be made at intervals during the season.

Daphne Cneorum

Constance E. Hamilton, Lorne Park, Ont.

It may interest some of the readers of THE CANADIAN HORTICULTURIST to hear of my *Daphne cneorum* which is now (June 6) in full bloom. I secured the plant from a florist in Pennsylvania and he almost assured me it could not survive our winters here. I have grown the Daphne now for four years with excellent results. The plant is an Alpine and of low-growing habit. The blossoms are in small clusters, bright pink and very sweet scented, and when in bloom the effect is of a carpet of pink emitting a delicious perfume. Our soil is very sandy and the plant is on quite an exposed position. Last winter it had no covering and seems to be none the worse.

The Flowering Plum (Prunus Triloba) in Bloom
On lawn of Mr. Robt. Chambers, Lindsay, Ontario

I would strongly recommend this plant to amateur gardeners. My early recollection of it is in a large circular bed about five feet in diameter in a Warwickshire garden. I should be interested to hear of any of the readers of THE CANADIAN HORTICULTURIST who may know of or who have tried the *Daphne cneorum*.

Propagating by Cuttings

When should I take cuttings for propagating spiræas, honeysuckles and rambler roses?—T.J.O., Shelbourne, Ont.

The climbers and shrubs that you mention in your letter usually are propagated from dormant cuttings, which, of course, should be taken in the fall or winter and stored to induce callousing of the butt ends. As it is too late now, we would suggest that you try propagating them by means of cuttings of the growing wood. It will not be any trouble in the case of the spiræa but the honeysuckle and the rambler roses may not take so readily. When the new wood is large enough take cuttings and plant them at once in good soil in the open or in a cold frame.

The Care of Peonies

Rev. Andrew B. Baird, Winnipeg

There is nothing particularly delicate or sensitive about the peony. It likes a strong, well enriched soil and plenty of water in dry weather. It is a heavy feeder and responds to good treatment, but there are some things that it will not stand for. If it is planted in a low location where the ice freezes over it in winter, it will die. If in the anxiety to treat it well, manure is applied so as to come in contact with the roots the plant becomes dyspeptic and its vitality is seriously impaired; but if the ground has been thoroughly enriched a couple of years before planting and if the manure is applied in the form of top dressing or by an occasional watering with manure water, nothing but good will result.

Peonies look well almost anywhere in a garden if they have room. They look well in a border with other flowers beside them, but probably they make the best showing when planted in groups or beds by themselves. If not set too closely together, annuals which bloom later in the year may be planted between and the beds will wear a different kind of beauty in the late summer.

If possible, the plants should have a location where they will be partially protected from the blazing sun and from high winds. The blooms last longer if they have some shade and they are apt, since they grow on long slender stems, to be battered by strong winds; in such a case, the plant should be supported by a hoop or by a circle of string tied to stakes.

In the matter of planting one can scarcely go wrong. The roots ought to be put down so deep that the tops will be a couple of inches below the surface. They look very much like rhubarb roots, and may be treated in the same way.

Keep the soil stirred in hot weather.

A Plea for Wild Flowers

M. E. Blacklock, Toronto

When you go to the woods and fields for wild flowers, do not root up everything you see; only take one or two roots of each variety—just what you can really care for. There are some things, like the lupins, wild asters, ox-eye daisies, golden rod, wild roses, etc., that are so deeply rooted, or such immense seed producers, that they can scarcely be exterminated, so gather all of these that you want; but there are other precious things which are becoming extinct through the thoughtless greed of their so-called lovers. The trailing arbutus, the fringed gentian and countless other treasures have been so freely gathered and so ruthlessly uprooted that soon their favorite haunts will know them no more. I am sorry to say that botanists are no better than other people in this respect, though they ought to set the example.

Now-a-days, when everyone is taking up nature study as a hobby (and a most delightful one it is), one cannot help wondering when all these people have each secured a specimen of each flower to study, whether there will be any left to propagate the species.

Slugs and Millipedes

What is the best method of controlling the slugs and millipedes that injure garden products?—A.P., New Glasgow, N.S.

Little damage is done by slugs if poultry are allowed the run of the garden, as they are dainty morsels to the ordinary fowl. Frogs, too, are very fond of slugs, and should be protected for their many kind offices to the garden.

There are, however, many other ways of dealing with slugs. If quicklime, ground tobacco or salt is dusted about the vegetables after dusk when the slugs emerge from their hiding quarters in the day-time, especially in rainy weather, many of them will be killed. The poisoned bran-mash, so effective against cutworms, is also a protection from slugs. This is made by mixing thoroughly half a pound of Paris green with fifty pounds of bran, and sweetening the mixture with molasses. Sufficient water should be added to give a firmness to the handfuls of baits distributed about the plants in the rows. Slugs sometimes climb apple trees to eat holes in the fruit, but they can be readily checked by the use of the poisoned bran-mash, or by burlap placed about the trunks.

Millipedes often do much damage to the roots of plants. They also eat holes in potatoes, strawberries and other plants. In some soils they are extremely abundant, and under such conditions it is almost impossible to grow plants from seed. A good plan is to mix thoroughly with the soil some tobacco dust or gas lime, to give the soil a good soaking with kerosene oil, or to give two or three light dressings with nitrate of soda. As millipedes usually move about at night, they can be trapped by leaving slices of mangel, potato, etc., lying about. They can be collected in the morning and destroyed. The value of poisoned baits in their case has not yet been clearly shown.

Millipedes or myriapods are often miscalled blackworms or wireworms, but the latter are the young of click-beetles and have only three pairs of legs. The millipedes have many legs, often several hundred.—Prof. W. Lochhead, Macdonald College.

Sweet Peas Twelve Feet High
At Victoria, B.C.

Make Dahlias Grow Quickly

C. M. Bezzo, Berlin, Ont.

During the early part of the season, the dahlia needs to be encouraged into a rapid growth. By this I do not mean to force it by too frequent use of the hose or watering pot, which induces a rapid but soft growth, and one that the roots are unable to sustain when the trying season of hot, dry midsummer arrives. In the early stages of its development, the ground should be worked often and deep, and the top surface thoroughly pulverized. This not only keeps the ground from drying out by sealing those natural capillary tubes by which moisture is evaporated, but by the process of capillary attraction draws up moisture from depths far below. Thorough cultivation also keeps down weeds which are the robbers of the soil, stealing the fertilizer, the rain and the dew.

Among the many benefits to be derived from deep and frequent cultivation—and this applies to all classes of soil—is to make the plants root deeply. But deep cultivation must not be continued after the plants begin to bloom. At this time they change their manner of underground growth throwing out roots nearer the surface of the soil. From this time on, stir only the surface soil to a depth of one or two inches. Do this after each rain or watering, being careful to pulverize the surface the next day.

The question of watering is a debatable one and presents another of the many opportunities afforded by cultivation of this plant for the exercise of sound judgment. Light, gravelly or very sandy soils may be watered every evening during the blooming period, as all surplus water drains away. But remember that in the process of draining a percentage of the fertilizer is carried away also. Heavier soils will very often receive more benefit from a thorough stirring of the surface soil which allows the air to penetrate to the roots and enables the plant to draw up moisture from below.

The Freesia

The cultivation of this beautiful South African bulb is quite easy. It can be grown successfully in the house. There are three varieties,—*Leichtlinii*, *refracta* and var. *alba*. The two latter are most usually grown. The edge of the flower being turned back, hence its name of *refracta*. *Alba* is the white form of *refracta*, with yellow stripes in the tube.

A compost of good light turfy loam, and a little leaf soil is most suitable. Drain the pots. Place seven to nine first size bulbs in a four-inch pot, putting them two inches below the soil. Give a good watering to settle the soil, and careful watering afterwards. A start can be made in August and these under proper care should be in bloom by Christmas, and successions right on until June.

When the plants are in bloom, they commence to make their new bulbs, or, more properly, corms, on the top of the old one. At this stage, if a plant is examined the corm can easily be seen (this applies to the gladiolus also). It also makes cormels at the side of the old corm.

When the plant begins to go out of bloom, water once a week with weak cow manure and keep them green and growing as long as they will, until the foliage shows signs of turning yellow, then gradually withhold water, and dry them dust dry by laying them on their side. This is the whole secret of bulb culture, making up the bulb again for next year's flowering. In shaking them out, grade them and pot the bulbs of equal size. The cormels may give a little flower the next year, but grow them on with generous treatment, and your flowering stock will increase. I have always found that freesias, treated in this way, give better results than bought bulbs.—G. B.

Send photos of Nova Scotia gardens.

Lawn and Garden Hints for July

DURING the hot days of July, the garden will require large quantities of water. Many amateurs make the mistake of merely sprinkling the surface of the soil. Unless the ground is thoroughly soaked, watering will not be of much use. If watering is done at night or in the early morning, too much can scarcely be given. It is always best to do this work in the evening. Next morning the surface soil should be stirred with a rake. Watering and constant cultivation must not be neglected in hot weather if good crops or plants are desired.

Cut-leaved Weeping Birch
On lawn of Hon. J. R. Stratton, Peterboro, Ont.

Celery requires plenty of water and fertilizing. Apply some liquid manure or commercial fertilizer. Celery may be be planted this month for late fall use.

Sow some dwarf beans and some corn for late use. Sow varieties that mature quickly. Late cabbage and cauliflower may be planted.

As fast as vegetable crops mature, put in others. Among the seeds that may be sown now are radishes, lettuce, early peas, early beets, cucumbers for pickles, carrots, cress and parsley.

If you have not yet sprayed your potatoes do so at once. Paris green and water, or Paris green and flour, will control the potato beetle. Bordeaux mixture is necessary for the prevention of leaf blights.

Towards the end of the month sow winter radishes. They will be appreciated during the winter.

Do not allow the greenhouses to lie idle all summer. Grow peppers, egg plants, cucumbers, and other crops in them. Whatever the outside weather conditions, these crops, at least, will be assured.

AMONG THE FRUITS

Keep the strawberry patch well cultivated. Do not allow the plants to suffer for water.

Keep the soil stirred around the small fruit bushes. Do not cultivate the raspberries and blackberries too deeply, as they are shallow-rooted.

To get best quality and size in tree fruits, thin them this month on the limbs. Remove injured and deformed specimens and then the smallest that are left. Do not allow any of the remaining fruits to touch each other.

THE FLOWER GARDEN

Stake and tie all plants in the flower garden that require support. Tie with soft twine and use neat stakes.

Remove the flowers as soon as withered from plants that are blooming. Pinch back dahlias, cosmos and the central buds of branching asters. Many kinds of annuals may still be sown. Use nasturtiums and portulaca for sunny locations. The latter makes a brilliant edging plant for dry and hot situations.

Keep the pansy bed well watered. Pick the flowers frequently, so that no seed will form and to insure a constant supply of bloom throughout the season.

To keep cut flowers fresh, cut the ends of the stems with a sharp knife every morning, and give fresh water. Do not place the flowers in direct sunshine.

The flower garden should be kept as clean and free of weeds as the vegetable garden. Flowers will respond to good attention. Neatness in edging the beds, and in cultivating adds much to the general effect.

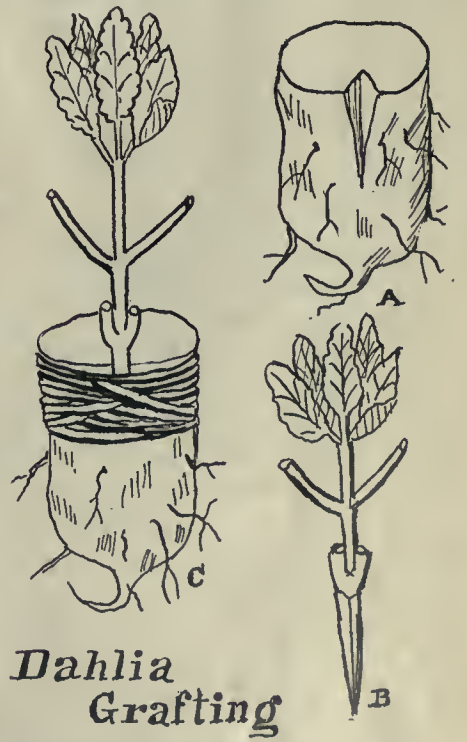
Dahlia Grafting

Translated from the French by Max Moineau, Toronto

IN a little work on the dahlia, written and published by Messrs. Riviore and Son of Lyons, France, I find the following article on dahlia grafting, which may be of interest to many Canadian growers:

"Grafting the dahlia is not sufficiently practiced, and we do not hesitate to recommend it. However difficult pot culture may seem, it is, nevertheless, the most practical. Grafting the dahlia gives a dwarfed plant, with a bloom superior to that of ordinary culture. Pot culture will be highly appreciated, when one takes into consideration its important services. For decorating the terraces and avenues, the beautifying of apartments, churches, and so forth, small plants make a greater effect than full grown dahlias. If this method is not employed to advantage, it is through lack of knowledge of the practice of grafting, and the belief that a good culture in pots is almost impossible. In view of exhibitions, this culture should be particularly appreciated. It is important also to add that the culture in pots of grafted plants permits them to be taken into the greenhouse in autumn, and thus prolong their superb bloom, which in the open would be killed by the first frost. One understands, without further urging, how important this advantage is, since the grafted dahlia in pots never becomes too large. The only precaution necessary to maintain the plants for a longer period is to air the place well, whenever the temperature is above freezing. The manner of procedure is as follows:

"Good tubers should be sprouted early, but instead of cutting for slips, cut the young sprout for the graft. The tubers used for this purpose must be preserved from the growth of the previous year, and should not grow large enough to develop eyes. These are cut across horizontally, as in object A, in the diagram, in order to prevent the possibility of stem growth, and afterwards, on one side of this section, a V-shaped



incision is made, to which the graft is to be perfectly adapted. Then take one of the young sprouts mentioned above and shape the base into the form of a wedge, or the blade of a knife, as in ob-

ject B. Introduce the prepared graft into the cut on the face of the tuber, so that it fits perfectly the incision, after which wrap with raffia, as in object C, and carefully cover the margins of the cut with cold grafting wax. This process finished, place the graft in earth in a pot of a sufficient size for the tuber, and carefully cover to the depth of about one-third of an inch. The pot is afterwards placed in a hotbed, if one operates before the month of April, and later, in May or June, the cold frame will be sufficient. But in each case the graft must be strongly shaded until the wound has completely healed, and covered each evening after sunset.

"The plants thus obtained grow perfectly, but make roots instead of tubers. This is why the culture in pots is so satisfactory. The ordinary culture would form such large tubers that the pots would fill up and prevent the growth of the plants. But you cannot count on the grafted plants preserving the varieties for the following year. To stop the growth of the grafted plant, you have only to permit the earth to dry out, and the tubers will have no further value. This also occurs if the graft takes root. If side tubers should form, they could not be utilized for multiplication, if one wishes to keep his collection true to type."

I have tried the method and find it successful. Blind tubers are the best suited for this purpose. I have not tried crossing the dahlia in this manner, but have used sprout and tuber of the same plant. It may be that a plant can be crossed by taking a sprout of one color or type, and grafting it into a tuber of another color or type, but I do not know. I hope someone will try it, and report his experience. For this reason, I contribute this article and drawing.

Cutworms on Vegetables

Dr. C. J. S. Bethune, in O. A. C. Bulletin No. 171

At the beginning of the growing season the gardener often finds in the morning young plants cut off near the surface of the ground that the evening before were strong and healthy. On stirring up the soil near by he may find hidden in the ground a greasy-looking caterpillar, the culprit in the case. Cutworms, so called from this habit, are the caterpillars of dull-colored night-flying moths of a great variety of species and varying to some extent in their habits. As a general rule they are partly grown at the approach of winter and hide away in a torpid state during the cold weather; when restored to activity by the warmth of spring, which causes the buds to open and the growth of plants to begin, these worms come out in search of food and attack any kind of tender vegetation that they meet with. They are nocturnal in their habits and hide away during the hours of daylight under any shelter they can obtain or just below the surface in the loose soil of newly made beds. Owing to their destructive practice of cutting off a whole plant in order to devour a portion of its foliage, they do a great deal of apparently needless damage.

After they have become fully grown they change to the chrysalis stage in the ground and in early summer the moths apear, many of them making their presence known in our houses by their attraction to light. Before very long another brood of caterpillars comes upon the scene, often more numerous and more destructive than the first. Some of them climb up into fruit trees and destroy the foliage, others attack farm crops, vegetables, grape vines, the plants in flower gardens, etc., while occasionally a single species appears suddenly in enormous numbers and sweeps like an army over the land devouring everything that comes in its way.

Happily a very simple and completely effective remedy has been found for these destructive creatures. It is called the "poisoned bran-mash" and is made in the following manner: Mix half a pound of Paris green in fifty pounds of bran (the proportion for larger or smaller quantities is one to 100); the poison should be added to the dry bran little by little and stirred all the time till the whole is tinged with the green color, then add water sweetened with sugar, or molasses ,till the mixture is sufficiently moistened to crumble nicely through the fingers. If bran cannot be procured, shorts or flour may be used, and for field work may be distributed dry by means of a seed drill. The mash should be scattered about the plants that are liable to attack in the evening, and strange to say the worms will devour it in preference to their ordinary vegetable food. When they begin to feel the effects of the poison they wander off to find a hiding place or burrow in the ground and there die. Their dead bodies will be readily found in the morning just below the surface of the ground, often in surprising numbers. Young plants, such as cauliflowers, tomatoes, etc., may be protected when set out by wrapping a a bit of newspaper around the stem between the root and the leaves and reaching a little below the surface of the ground. The worms will not attempt to bite through or climb over it.

In reply to "R.T.W." 's question in the June issue regarding broad beans, I have successfully grown them by (a) sowing the seed early in spring (before April 20) in upturned sod in a cold frame; and (b) pinching off the top of each plant when over twelve inches high as soon as it is in blossom.—Rev. J. Fisher, Port Elmley, Ont.

Pointers on Celery

John N. Watts, Portsmouth, Ont.

In planting out celery plants many growers put manure in the trench (which calls for a large amount of extra work) instead of manuring all the land. This plan I have tried but find it only works well in certain seasons; that is, if the summer should be showery.

There is no better system than to plant about three feet apart and have a shallow furrow or what some may term surface planting. The plants should be carefully lifted with a fork out of the bed from which they have been transplanted, so as to insure a good supply of new roots which, when well moistened, are ready to set in the trench.

The trench is much improved by making a return trip in the furrow with a one-horse fine-toothed cultivator, which gives plenty of fine soil to pack around the plants. If the weather is dry, a little water should be given to insure success.

After the celery has started a good growth, it should have a good hoeing with the common hoe, after which the cultivator should be kept moving through it once a week until it has reached the size for market.

My plan for blanching is with boards which always gives a fine clear head of white celery and is quickly applied. The celery is kept in position either by the use of a small stake driven down outside the boards, or by tacking on a small strip of lath which answers the purpose.

In harvesting, I aim to secure my crop before it gets a hard frost as this destroys its keeping quality. I always guard against having any wilted heads when digging them out as they sometimes get too much sun before they are put in the root house. In trimming the green celery, I usually strip off all the leaves from all the stalks but a few of the centre ones, as they rot and drop down in the heart of the plant and necessitate the crop being overhauled.

To Kill Spiders

I am anxious to hear of some mixture which is sure death to, or which would drive away, spiders and which could be sprayed on the eaves of the house and into the gables and crevices. It would not do for the mixture to injure paint. This question may not be in your line, but I cannot think of a better authority to write to as you are well up on sprays for destroying insects on trees and plants.—N.L.P., Midland, Ont.

We know of no experiments that have ever been tried to kill these beneficial animals. Their food consists largely of noxious insects and can do harm only by spinning unsightly webs. If pyrethrum powder is dusted about the affected places the insects and spiders will be reduced to a minimum.

Insects Injurious to Vegetables*

Arthur Gibson, Chief Assistant, Division of Entomology, Central Experimental Farm

IT is unfortunately true that every kind of vegetable crop grown is attacked and liable to be much reduced in value by various insect enemies. At the Central Experimental Farm hundreds and hundreds of letters are received every year from farmers, fruit growers, market gardeners and others, asking for advice concerning injurious insects. It has been estimated that from ten per cent. to twenty-five per cent. of every crop grown is destroyed by insects.

It is important that the grower should know something concerning the life-history of the insects he has to fight. Most insects have four distinct stages, the egg, the larvæ (caterpillar, grub or maggot), the pupa or chrysalis, and the perfect insect. A little close observation will soon enable one to distinguish between these stages and such knowledge gained will be valuable when a certain kind appears in destructive numbers.

It is important too that we should be able to tell whether the insect when feeding bites its food, or whether it simply inserts its beak or tube into the plant and takes up its food in a liquid form. As soon as an insect is noticed injuring a crop, this point should be decided upon at once, because it can be easily realized that with insects that bite and swallow their food, something of a poisonous nature must be put on to the plant which will be eaten with it and thus kill the insect. If such a remedy was supplied for an insect that sucks up its food, it would of course be without any results, because the insect would simply insert its beak through the poison and take from within the juice which it required for its nourishment.

WHITE CABBAGE BUTTERFLY

Every year the small white cabbage butterfly, known generally as the cabbage worm, destroys large numbers of cabbages, cauliflowers, etc. In eastern Ontario it was much complained of during 1908. There are at least two broods of this insect in a year and in some seasons an additional late supplementary one.

The well known green caterpillars, which when full grown are about an inch long, at first eat the outside leaves, and it is at this time that they can be best destroyed. Gardeners should, therefore, watch for the first appearance of the caterpillars and apply a mixture of pyrethrum insect powder and cheap flour, in the proportion of one pound of the insect powder to four of cheap flour. Before using, the whole should be thoroughly mixed together and allowed to stand in a tightly closed vessel for twenty-four hours. It is easily and quickly applied to the plants by means of one of the dusters, or other such contrivances now sold by seedsmen. No danger whatever attends the use of insect powder on such plants as cabbages. The rather prevalent custom of using Paris green and other arsenicals on such vegetables was always condemned by the late Dominion Entomologist, Dr. Fletcher.

THE ZEBRA BUTTERFLY

The zebra caterpillar which attacks turnips, cabbages, peas, clover and potatoes is probably known to every market gardener. The moths emerge in spring and lay their eggs in clusters on the undersides of the leaves. For a little time after hatching the young caterpillars feed together, but as they get larger they wander off by themselves. There are two broods in the year. The caterpillar when mature is about two inches long of a velvety black color with two bright yellow stripes along each side.

If cabbages or cauliflowers are attacked the pyrethrum insect powder as recommended for the cabbage worm, should be used to destroy these caterpillars. When other plants are being injured, Paris green, in the proportion of one pound to 160 gallons of water, may be applied with a spray pump.

COLORADO POTATO BEETLE

The potato beetle is responsible for far too much damage. There is absolutely no reason for the widespread loss caused by this insect. The mature beetles, usually called by farmers "the potato bug," pass the winter in the ground. Towards the end of May, they come out again and the females soon deposit the bright orange eggs on the underside of the leaves. These hatch in about a week and the larvae at once attack the foliage. There are three broods in the year, the last brood emerging in September.

The poisoned Bordeaux mixture, now so widely used for fungous diseases and leaf-eating insects, will not only protect potatoes from the attack of the Colorado potato beetle but will also prevent injury by early rot and the more destructive potato rot. The first spraying should be done early in June, the second early in July, and the others about the 1st, 15th and 31st of August.

TURNIP AND CABBAGE APHIS

Much damage has been done of recent years, particularly to Swede turnips, by this well known grayish plant-louse. At the time the turnips are being hoed and thinned, the colonies of these insects should be searched for and any plants found to be infested should be cut out and the plant lice crushed under foot. When the insects are too numerous for this treatment much good may be done by spraying the restricted areas in time, with the ordinary kerosene emulsion, or whale oil soap, one pound in six gallons of water.

This plant louse spreads very quickly, especially during dry autumns, and much can be done to prevent widespread infestations if the plants are watched and the remedies applied early. The cabbage and turnip aphis deposits its eggs on the leaves of cabbages and turnips in autumn. Therefore, all remnants of these plants should be gathered up and burned, or plowed down, as soon as the crops are harvested.

*Extracts from a paper read at a meeting of the Ottawa branch of the Ontario Vegetable Growers' Association. Other insects will be referred to in later issues.

The Asparagus Bed

James F. Nicholson, Ottawa

No asparagus should be cut after the first of July. During the cutting season, give a good dressing of salt during showery weather. A good idea is to give the beds a good dressing of some fertilizer after the cutting season is over to promote growth of crowns for the following year. Fertilizing in spring has little effect on the crowns the same season.

PROPAGATION

Asparagus is propagated by seed sown in the spring. To get good one-year-old plants, sow thinly and then thin the plants to three or four inches apart, taking care to select only the strongest plants to stand. Plants with many small shoots should not be planted. By keeping the seed bed hoed and free from weeds, the plants will be in fine condition for planting out the following spring. It is a mistake to use plants that are two or three years old for planting. Use one-year-old plants and cut the third year after planting. The best varieties are Palmetto and Colossal.

To save seeds select some of the finest shoots as they grow and stake firmly to prevent breakages, by wind. When fully ripe, the largest and finest berries of the deepest red color should be selected.

SOIL

The best soil for asparagus is a friable loam, but good crops may be obtained from any good sandy loam made porous by the application of large quantities of manure. The situation should be open to the sun and yet sheltered from strong winds.

MAKING THE BEDS

Strike out your rows with a plow four feet apart and as deep as possible. Put in some good rotten manure in the bottom of the trench. Plant one and one-half feet apart and cover with hoe. Keep the ground well cultivated through the summer. Cut down the tops in fall and give a good dressing of rotten manure and work in with a cultivator.

Produce those vegetable crops that are in greatest demand in the home market.

The Canadian Horticulturist

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January, 1908	7,650	January, 1909	9,456
February, 1908	7,824	February, 1909	9,310
March, 1908	8,056	March, 1909	9,405
April, 1908	8,250	April, 1909	9,482
May, 1908	8,573	May, 1909	9,172
June, 1908	8,840	June, 1909	8,891
July, 1908	9,015		
August, 1908	9,070		
September, 1908	9,121		
October, 1908	9,215		
November, 1908	9,323		
December, 1908	9,400		
Total for the year	104,337		

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Average each issue in 1908, 8,695
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THE CANADIAN HORTICULTURIST,
PETERBORO, ONTARIO.

EDITORIAL

PROGRESS IN NOVA SCOTIA

For many years, the Annapolis Valley in Nova Scotia has been famous for its apples. To that district, Canada owes much for pioneer work done in advertising our fruit growing capabilities in the British markets. Many excellent displays of fruit have been made by the province at exhibitions in London, most important among which was the magnificent exhibit made at the Indian and Intercolonial Exhibition in 1886. Since then, at Royal Horticultural Shows, the province has effectively advertised its capabilities and won many honors. The export of apples to Great Britain began about 1875 and the quantity each year has increased from a few hundred barrels at that time to over 700,000 last season. Nova Scotia apples command top prices and are always in demand.

In the days of the Acadian French, two centuries ago, apples were grown successfully. Some of the trees still exist as aged relics of a historic past that has been immortalized in romance and song by a host of poets from Longfellow to Roberts. Aside from the commercial, there is a sentiment about blossoming time and the apple harvest in the Annapolis Valley that attaches itself to few other fruit districts. The people of the Valley are proud of their heritage and well they should be. It must not be supposed, however, that the growing of apples in Nova Scotia is restricted to the Annapolis Valley. The contiguous fertile valleys of the Cornwallis and Gaspereaux rivers are equally favored. In these and in a few other localities also, the apple and other fruits are extensively grown.

While the province has long been in the business and is up-to-date in most methods connected with orchard practise, there is room for development and progress. There are several other localities there that give promise of becoming good fruit growing centres and trees and fruits should be planted for home use on many farms all over the province that now do not have them. The educational work that is being done by the provincial fruit growers' association will do much to bring this about and the lessons that may be learned from the thirty or more "model orchards" that have been established by the government are many. Expert instruction is offered also by the horticultural department of the Agricultural College at Truro. The opportunities for acquiring knowledge and for mutual benefit are readily available.

Growers with established orchards would do well to investigate the value of co-operation in the handling and selling of their fruit. Three or four co-operative associations already have been organized. Others should follow. This point was emphasized by Chief McNeill at fruit meetings held last month as reported elsewhere in this issue. The co-operative plan is the best plan. Nova Scotia growers should take advantage of it and thereby make the fruit industry of the province still more important and more profitable.

CRANBERRY EXPERIMENTS

Cranberry culture is becoming an important factor in the fruit industry of Nova Scotia. In 1890, the output from cultivated bogs amounted to 400 barrels; in 1898, it reached nearly 4,000 barrels; in 1908, about 8,000 barrels. A barrel holds 80 quarts, and a well managed bog should yield at least 150 barrels. At five or six dollars a barrel the yield per acre sells for $750 to $900. The crop is a profitable one, but the growers are constantly meeting with discouragement and disappointment. Insects and frosts are the worst enemies and were particularly aggressive during the years 1902 to 1906. In view of the constant damage done by these enemies and of the fact that a well made cranberry bog entails a comparatively large initial expense, we would suggest that the provincial government establish a cranberry experiment station. A proper location in a cranberry district, could be purchased outright or arrangements, similar to the "model orchard" plan, could be made with an established grower. The cranberry growers of Massachusetts are working to secure a station of this nature in that state, as they are planting larger areas each year and have to contend with the usual difficulties. As the United States growers are competing more each year with Canadian growers, it is time that the industry here was put on a firmer basis.

A cranberry experiment station would investigate insects and diseases and how best to spray and otherwise control them. It would determine the best methods of flooding and other means of preventing injury from frosts. Systematic experiments with fertilizers could be carried on with relation to their effect on the color, quantity, size and keeping qualities of the fruit and to determine their retentive values in the soil. The propagation, development and origination of varieties, the destruction of weeds and mosses and the study of climatic conditions could all be included in the work. There are many problems to work out and much to learn in this industry. The establishment of such a station should be considered favorably by the Nova Scotia Department of Agriculture.

THE STORAGE OF FRUIT

The change made in the Cold Storage Act at the last session of the Dominion Parliament will help materially to encourage the building of warehouses for the storing of apples. As originally drafted the Act provided for the bonusing of warehouses for the cold storing of all kinds of food products. To take advantage of the bonus, the builder or builders was compelled to accept any class of food products that might be offered for storage. This was not satisfactory to our fruit men. The change makes it possible to erect warehouses for the storage of fruit only. Our co-operative associations, that have not erected warehouses, should avail themselves of the opportunity that is now presented.

In order to gain further information on the value of cold storage for fruit, Parliament voted at the last session $7,000 for experimental work in this matter. While some of the benefits of cold storage are known already, there are many factors that require further investigation These experiments will be followed with interest by our fruit growers.

Four years will soon have passed since the last Dominion Fruit Conference. Is that too short a time in which to expect another? At the March, 1906, conference the Minister of Agriculture at Ottawa practically promised to hold a similar congress at the expiration of two years and now it is nearly four. In this time the fruit industry of all the provinces has been assuming a larger magnitude and the problems of national concern have been increasing proportionately. Our growers will expect another conference to be held next winter.

PUBLISHERS' DESK

As announced in our June issue, a number of articles are published this month that are of special interest to horticulturists in Nova Scotia. As is customary at this season of the year, the size of THE CANADIAN HORTICULTURIST is considerably reduced. For this reason, we have deemed it just to leave New Brunswick and Prince Edward Island until next month. This will give the three provinces more news and more articles than they could be given in one number. Our friends in New Brunswick and Prince Edward Island are requested to send photographs of fruit, garden and lawn scenes and to contribute short letters of articles on anything that has to do with horticulture for publication in our August issue.

Our cover illustration this month shows the street passing Hillcrest Orchards, Kentville, N.S., a small corner of a young orchard of 20 acres, a corner of a 10-acre block of Gravensteins, the packing house and other orchards of Hillcrest beyond. The photograph was taken from the residence of Mr. Ralph S. Eaton, the manager of this large concern, which harvested 3500 barrels of apples last season and which expects to produce and harvest three times that number each season from these orchards when all the trees come into bearing.

We are pleased with the interest that is being taken in our question and answer department. Enquiries on any phase of horticulture will be carefully answered by us or by experts to whom the question will be submitted. It must be distinctly understood, however, that anonymous communications and letters must be accompanied by name and address of the senders so that we may know that they are from bona-fide subscribers. Only the initials of enquirers will appear in print.

Toronto Vegetable Growers

The regular monthly meeting of the Toronto branch of the Ontario Vegetable Growers' Association was held on June 5. A large number of members were present and the meeting was a success.

The exhibit of asparagus was very fine. Each exhibitor was required to show three bunches, with six sticks in each or 18 sticks in all. The first prize went to Jos. Allen, second to John Brown and third to John Tizzard, all of Humber Bay. The lot that won first prize was very fine, the 18 stalks weighing just one ounce short of three pounds.

It was decided to hold the annual excursion of the association to Niagara Falls, on the first Thursday in August. From present appearances, this will be the big thing of the year and a big crowd is looked for. The Ontario Seed Co. sent an invitation for the members of the association to visit their trial grounds at Waterloo, some time in July. The matter was left over until the July meeting.

Every fruit grower in the Annapolis Valley should take THE CANADIAN HORTICULTURIST. Each issue is worth more than the price of a year's subscription.—C. A. McGregor, Hants Co., N.S.

If you learn from others, they may learn from you. Send an article for publication.

Nova Scotia Fruit Meetings

Eunice Watts, Waterville, N. S.

The Dominion Fruit Division is organizing meetings in the Annapolis Valley to take up the subject of co-operation in the selling of fruit. Mr. A. McNeill, Chief of the Fruit Division, addressed the meetings at Berwick, Lawrencetown, Bridgetown and Bear River early last month.

At the meeting in Berwick, the Rev. G. P. Raymond was elected chairman. In an address on co-operation, Mr. McNeill, referring to our apple industry, said that if Nova Scotians did not look to their laurels they would be distanced in the race. Continuing, he said that the elevating tendencies of the orchard ought to appeal to us all. A friend once said to the speaker, that he did not believe that children raised in an orchard could go far wrong, and if we studied the prison statistics, they would bear him out, for fruit growers were scarce in the penitentiaries. (A Voice)—"The fruit inspectors don't do their duty!" Mr. McNeill again justified the fruit grower by putting the blame on the dealers.

In a few words of self defence, Mr. McNeill said that the people of Ontario called him a crank, and the editors said that he appeared to think that his sole mission in life was to recommend early apples for southern Ontario. What he really wished to do was to point out the particular needs of each locality. In southern Ontario, some apples were fit to harvest by the the 25th of July, and Red Astrachan and Duchess were ripe by the third week in August. Why should they glut the market with late fruits when other parts of Canada could grow better?

In the Annapolis Valley growers need a better system of marketing their apples. No part of the Dominion, except British Columbia, is so forward with its culture, and in no part of Canada are there so many apples grown in small areas. Last year the output from Nova Scotia was 710,000 barrels. Considering that Nova Scotia has so many advantages, such as proximity to the sea, with railroads, and a province situated nearer to the British markets, the orchardists are not as forward as they should be. They get too small returns and pay too much for appliances used in the apple culture. If these growers could be organized into associations, the next step would be the co-operation of sub-ordinate societies into one solid community which would speak as one voice.

LESSONS FROM CALIFORNIA.

As an object lesson, the chief gave a sketch of the co-operation of the orange and lemon growers of California. From time to time the growers of citrous fruits had formed local societies which did good work by encouraging growers, but they met with big obstacles which they could not tackle, as when the fruit went through private concerns, such as transports, commission men and the like, who took toll and profit. At times these local societies would get discouraged and drop out. Then they tried putting all their produce into the hands of one firm which proved disastrous.

Four years ago the orange growers combined so that sixty to seventy-five per cent. of their fruit is handled by co-operative associations who send delegates that take over the whole fruit and sell it. Their great success is due to the public spirit of the manager. When he became interested in the organization he owned large orange groves, but when he accepted the management he sold his property, disposing of his own interests in order to be above suspicion and to become a servant of the orange growers. The result is that citrous fruits are being sold in every possible place at a market price.

Omaha and Chicago are the two orange centres from whence the standard cars are sent. There is a good system of inspection and, like in the apple districts of Hood River, Oregon, no grower is allowed to pack his own fruit; this gives rise to a uniform grade of produce.

Before sending a car of oranges to a city like Ottawa, enquiries would be made. If the price is below others quoted, Ottawa would have to come up, or receive no more oranges. This trust in fruit is for good; it makes the largest consumption of oranges possible. If oranges are scarce, the price is higher, but the orange combines make no effort to play tricks like those who try to corner the wheat.

NOVA SCOTIANS SHOULD ORGANIZE.

The apple growers should look upon the orange associations as an object lesson. Every box of oranges consumed means one less of apples which have keen competitors in oranges and bananas, but peaches and small fruits do not interfere. We are not increasing the apple business as the banana growers are increasing theirs. The dealers in England are not anxious to help the apple grower and there are difficulties over there with which the individual cannot cope. If we wish to get proper value for our apples we must co-operate and organize into local associations, and then get others to co-operate also.

In London No. I apples are sold for fourpence and sixpence a pound, good and bad years the price is the same, but the middleman absorbs the difference. To benefit ourselves we must unite and thus save on rebate, freight and insurance—a gain of about 40 cents on the barrel. We ought to be missionaries in this propaganda and put by half a cent from every barrel in order to start new societies. Through this co-operation, men will strive to grow better fruit and save 25 per cent, on spray pumps and fertilizers. Ontario associations have saved on their baskets and what Ontario growers can do with their baskets, Nova Scotians ought to do with their barrels. As an instance of the advantages of buying through the co-operation, Mr. McNeill said that he had paid one cent and a third for a pound of sulphur for which the druggist asked him five.

The associations need honest and loyal leaders, unselfish men of public spirit. There are various kinds of patriotism and the easiest kind of a hero is he who goes to battle and bloodshed. A much different and honorable way of being a hero is to do the daily duty at home by being hard-working and honest. A man who does the common things of life well, with no brass bands to herald him is a true hero and patriot. Such are the leaders of several associations who have sacrificed their own interests and bettered the general public.

At St. Catharines, Ont., the association has doubled the price of land in five years and men who work in factories have bought their little fruit farms, and by following the others' examples, have developed themselves from mechanics to good fruit growers.

Mr. Vroom, when called upon to speak said that the co-operation has his heartiest sympathy and that he had been assisting the farmers of Prince Edward Island to

co-operate in all kinds of things for their farms. Mr. Raymond in closing the meeting, said that co-operation was a mark of civilization. In pre-historic times, every man was for himself. In years gone by, there was no co-operative educational system; the rich man could hire a tutor but the poor man's children had to go without.

NOTES FROM THE PROVINCES

Western Annapolis Valley

R. J. Messenger

We have this spring what very rarely happens—a full bloom almost everywhere; well-kept orchards, ill-kept orchards, pastures and fence corners, all show a full bloom and this after a year of good yield of clean fruit. More than this, the weather has been ideal for pollination. From the time the earliest blossoms opened, till the present writing (June 15), when the bloom is about off, there has been no rain and fresh winds.

Apples are setting well and giving promise of a large crop. Very dry weather for some time may destroy this promise and several other contingencies may arise but just now prospects are good.

Looking over the past year, we are struck with the fact that the canker worm and the brown-tail moth have proved blessings to the Annapolis Valley. Someone has said in effect that weeds are the best friends of the farmer and it is safe to say that insect pests are the best friends of the average orchardist. Never before have we had such an awakening in spraying and general orchard management as during the past two years, and its effect was not only shown in the crop of last year in quantity, but also in quality, while this year bids fair to prove the value of the intelligent work aroused. Canker worms are not as numerous as last year and those that still remain are meeting with a "Waterloo" that will practically exterminate them. Not so many brown tails have been found as last year.

The farmers are beginning to see the value of right methods in raising fruit and are practising them. Better than this, they are improving every year in packing and handling methods. Several successful co-operative companies are running, packing and disposing of their fruit to such good advantage that other companies are bound to be formed shortly.

Our success at the Royal Horticultural Show last year in comparison with other provinces of the Dominion has given the feeling that we can raise as good apples as anywhere under the sun. The future is bright, with promise for Nova Scotia fruit.

Eastern Annapolis Valley

Eunice Watts

At the time of writing the most striking things are the apple blossoms and their perfumes, particularly those of the Gravenstein, which look like elevated snow drifts; the writer never remembers seeing such a show of blossom before. The Dominion Atlantic Railway is running an excursion train through the Annapolis Valley, so that the outsiders will have a chance of seeing miles of beautiful bloom.

The apple trees, particularly those in nursery, have been attacked by the bud moth (*Tmetocera ocellana*). In young trees they are very injurious, destroying buds which will determine the future shape of the tree; however, Paris green is a match for them.

Special fruit meetings under the auspices of the Dominion Fruit Division, were addressed by Mr. A. McNeill, chief of the Fruit Division, at Berwick, Lawrencetown, Bridgetown and Bear River, in order to interest orchardists in the co-operation of the selling of fruit. Mr. McNeill handled the subject in a masterly manner, and gave as examples of the benefit to be derived from co-operation, the associations of the Southern California citrous fruit growers and of St. Catharines, Ont.

Fewer potatoes are being planted, but many thousands of tomato plants, bought at $12 and $13 per 1,000, are taking their place. A few cut worms are in evidence around the plants.

Cape Breton, N. S.

Rev. D. Macpherson, Glendale

The model orchard has been set for four years only and as yet its influence is not perceptible. Were a good salesman to come into the locality I believe that the people would respond and place orders much more readily than they would have done heretofore. When the orchard bears an appreciable burden of fruit I feel sure that a lesson will be taught and that many will invest in a few trees and look after them properly.

No one would as yet try to incite any man to go into orcharding on anything like a large scale but I think all will soon learn that everyone can do a little on the side; a little that will help to keep the pot boiling, the housewife cheery, the children attached to home; a little that will beautify the homestead and give it a touch of color that is entirely absent from the treeless farm house.

New Brunswick

J. C. Gilman

The New Brunswick Fruit Growers' Association held orchard meetings at different points in the St. John Valley last month to give practical lessons in preparing and applying Bordeaux mixture and other preparations that give good results. Many growers are still backward about investing in this form of insurance to get good fruit, but the increasing demand for the best, with corresponding high prices, is the best kind of an argument to convince the intelligent man that he must adopt good methods to get good fruit. Good results are looked for from the meetings. The need of lessening insect injury to our orchards is very apparent.

Many apple trees have been planted this season. The McIntosh Red, Bethel, Dudley Winter and Wolfe River are varieties much called for by planters. Top-grafting with Yellow Bellflower (Bishop Pippin) is also being practised with good results.

The apple crop for 1909 is promising. The January thaw that left our fields covered with ice, gave rise to fears for the safety of the strawberry beds. The damage, while bad enough, is not so great as at first feared and the plants are setting fruit nicely.

Gooseberries and currants are also very promising. The demand for the gooseberry is greater than the supply and should encourage further plantings of this fruit.

Owing to frequent winter killing of Cuthbert raspberry, it is likely to be replaced by the Herbert and King, two kinds that have proved hardier than the Cuthbert, and are also good bearers of fine berries. Present appearances indicate about a half of a crop from Cuthbert and other half hardy kinds, with the hardier varieties promising a full yield. Blackberries will be about an average crop.

Quebec

Auguste Dupuis

Apple trees are in full and abundant bloom north-east of Quebec city. Cherries and plums are setting and promise a fair crop. The Damson and Canadian Reine Claude plums, largely grown in Monmagny and Kamouraska districts on the shores of the St. Lawrence, have not bloomed so heavily as the European varieties. Pears, cultivated only by a few amateurs, have bloomed abundantly, especially Clapp's Favorite, Flemish Beauty and Beurre Baltet. Currants, gooseberries, strawberries and raspberries will give fine crops if no accidents happen.

The season is backward, the bloom being two weeks later than usual, but trees and plants did not suffer any damage by the winter and cold spring. Numerous orchard plantations have been made this spring and are doing very well.

Manitoba

Geo. Batho, Winnipeg

This has been a season of wonderfully rapid growth. When I wrote a month ago, the trees were just opening their buds. To-day many of them show 18 inches of growth, and by June 17th the writer had gathered from his own garden both irises and peonies in full bloom. It will be seen by this that, although the opening of spring was very retarded, vegetation has been pushed well forward. About the beginning of June we had a few very liberal rains, but the centre of the month has been very hot with a growing need at time of writing of more frequent showers. June, which is usually our month of liberal rainfall, has not been quite as wet as could have been desired. However, everything seems so far to be going along well.

If we get sufficient rain to develop it, the promise is for a very heavy fruit crop on the prairies. Everything in the shape of an apple or crab tree was loaded with bloom, many trees only five or six feet high being a perfect snowbank of blossom. The season of apple bloom was during the first week of June, and Mr. A. P. Stevenson, of Dunston, who is the veteran apple grower of Manitoba, told the writer that he counted in his orchard 506 apple and crab trees in bloom at the same time. About one-third of these were crabs and two-thirds of them standard apples. Besides this, he had blossom on about 350 plum trees, and a good showing of bloom on his Compass cherry and several trees of the Morello type, which have been bearing in the past. At the Buchanan Nursery, near this city, there was also a wonderfully fine showing of blossoms, and, in fact, well throughout the country, so far as I have been able to ascertain. Small fruits and wild fruits promise to yield well. Of the latter, it may be remarked, we have quite a selection, and some of our wild fruit is quite acceptable.

The prairie market demands great quantities of fruit from Ontario and British Columbia. We hope that the crop in the other provinces will be a liberal one.

Alberta

Wm. R. Reader

The Russian poplar, as an ornamental tree for town planting, is a species that seems to do remarkably well in Calgary whilst in a young state. It grows rapidly, seems to be almost or quite immune from pests and diseases, withstands the rigors of the winter well and last, but perhaps not least, retains its foliage longer in the fall than most other trees, at which season it assumes some very pretty tints. These are all very strong recommendations, and the citizens of Calgary are very enthusiastic over the Russian poplar and are planting it quite extensively.

Recently, however, an eminent forestry expert, who is a government employee, was through here, and whilst in Calgary gave a most interesting and instructive lecture on trees. During the course of this lecture, he emphatically condemned the Russian poplar, saying that it would prove very unsatisfactory as it approached maturity. It is impossible to prove his statements here, as the oldest specimens of this species that we have are not more than 10 or 15 years of age, and, as previously stated, they seem to be our best trees whilst in a young state. It seems to me that it would be utter folly to continue to plant these trees, if it is as the lecturer stated; for, just as they would be approaching the most useful period of their existence for shade and ornamental purposes, they would be destroyed, and a start would have to be again from the beginning. I should be glad of information from any of the readers of THE CANADIAN HORTICULTURIST in the Northwest, who may have been able to observe this particular species for a longer period than we have had the opportunity of doing in Calgary.

NOTE.—The foregoing letter was submitted to Prof. E. J. Zavitz, Forester at the Ontario Agricultural College, Guleph, who replied as follows: "Our experience in this country with this tree has been very limited, but I take it for granted that the Russian poplar would be much the same as the others of this genus; that is, all the populus group are rapid growers during their early period, but deteriorate very early in life. I think it is likely that the views of the forestry expert are correct."

Readers of THE CANADIAN HORTICULTURIST in the Northwest who have observed the behaviour of this tree, are requested to tell their experiences through these columns.—*Editor.*

Co-operation in Nova Scotia

Editor, THE CANADIAN HORTICULTURIST,—I would like to make a few observations in reference to co-operation in the province of Nova Scotia along the line of packing and marketing fruit. During the past fruit season there were four co-operative fruit packing companies operating in the Annapolis Valley. Two of these companies own their packing houses; the other two rent them as yet. Fruit growers who are members of these co-operative companies gather their fruit carefully (at least, it should be gathered carefully) and take it to the packing house, which is located beside the railway track. Here the grading and packing is done under the supervision of a competent man and a uniform grade is maintained throughout. If Mr. A. has fruit that will pack 70 per cent. No. 1, he has advantage over Mr. B., whose fruit will pack only 40 per cent. No. 1. Every member gets credit for the class or grade of fruit that he can produce; in this way, a spirit of rivalry is created to see who can grow the best quality and have packed the largest percentage of No. 1 fruit. Further, while one man is endeavoring to outclass his neighbor he is improving his property, adding to its cash valuations and doing much to beautify his section of the province.

Fruit, carefuly handled and properly graded and packed in a co-operative packing house, is in the same position with regard to a market as creamery-made butter, inasmuch as one or two packages is a fair sample of the whole output, and it is only necessary for a dealer to see a small quantity to judge the quality of the entire pack.

That co-operation among fruit growers is the proper way to handle and dispose of fruit can be proven by the results and experiences of last season. The price was from 50 to 75 cents a barrel higher and the demand for co-operative packing companies' fruit was away beyond the supply. When a reputation has been established, it is not a question of going out to search for a market, but just the opposite. The dealer, who is desirous of handling reliable fruit, will come to the company and purchase the entire output at the packing house. The culls are taken to the vinegar factory. In this way, the whole crop is converted into cash and at a good price. Further than this, fruit growers can co-operate in the purchase of packages and thereby secure a first class article at the minimum of cost.

Co-operation is the solution, and the only solution of the fruit industry or problem in the province of Nova Scotia. Agriculturists co-operate through the farmers' institutes and purchase such things as pure bred stock, fence wire, grass seed, binder twine, etc. Why should not horticulturists be wise and do likewise?—G. H. Vroom, Dominion Fruit Inspector, Middleton, N.S.

One of our Apple Trees in Orchard of A. Rutherford Balcomo, B.C., In full bearing, planted only 3 years.

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Department of Agriculture, Experimental Farm of B.C.,
Messrs. Stone & Wellington, Agassiz, May 29th, 1906.
Toronto, Ontario.

Gentlemen:—Yours of the 21st to hand. I know that you will be pleased to learn that I have had splendid success with the scions I received from you. Your trade in the Kootenays should increase very rapidly, as your trees are good and being grown in a limestone soil are better constituted than those grown on this coast, where there is no lime in the soil. Yours faithfully,

(Signed) THOS. A. SHARPE

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FRUIT CROP PROSPECTS

Present indications point to a good crop of fruit in most fruit districts. In British Columbia the peach crop will be almost a failure and probably cherries, but apples and other fruits promise well. Heavy blossoming on the prairie provinces gave promise of a good harvest. The prospects in Ontario seem to be good. A full bloom is reported on most varieties of apples, Baldwins being most shy. Favorable weather conditions during the past month, made the June drop lighter than usual in localities where it has taken place, lateness of season delaying the drop in some districts. Other fruits look well, except peaches, which have been badly injured by leaf-curl. Quebec expects the apple crop to be below the average. In the maritime provinces, an abundant crop is anticipated. Professor P. J. Shaw, of the Agricultural College, Truro, N. S., who spent considerable time last month travelling over the province, writes: "Present indication is that this season's crop will be the largest in the history of apple growing in Nova Scotia." The situation in local districts is given by crop correspondents of THE CANADIAN HORTICULTURIST as follows:

KING'S COUNTY, P.E.I.

Aitkin's Ferry.—Every kind of fruit tree carried an exceptionally heavy load of bloom. Small fruits look well.—D.J.S.

QUEEN'S CO., P.E.I.

Charlottetown.—Apple trees had abundant bloom. Appearances on plums and pears are for a fair crop. Hardy varieties of cherries were loaded with blossoms.—W.C.W.

PRINCE CO., P.E.I.

Bedeque.—Blossoms were abundant and prospects are good for large and small fruit.—C.N.B.

LUNENBURG CO., N.S.

Bridgewater.—Fruit trees show prospects of a heavy fruit crop. Not many tree pests are in evidence and the weather conditions are favorable.—H. S.

DIGBY CO., N.S.

Digby.—Judging from the blossoms, the crop is going to be exceptionally good in this locality.—J.E.S.

KING'S CO., N.S.

Cambridge Station.—The blossom season was ideal and the apples appear to be setting full. The trees never looked better. All the enemies have been held under control by thorough spraying. Good weather conditions, together with good careful spraying and cultivation will ensure an average crop at least. Many growers are using lime-sulphur instead of Bordeaux as formerly, apparently with good results so far.—J.H.C.

HANTS CO., N.S.

Falmouth.—There will be an average crop of apples or more. Pears, plums and small fruits promise a full crop.—E.R.L.

COLCHESTER CO., N.S.

Truro.—Apples and plums, fairly good; cherries, good. Currants and gooseberries are fine. Raspberries and blackberries were injured by winter-killing. Strawberries came through fairly well where protected, and are setting fruit well.—J.C.B.

PICTOU CO., N.S.

Welsford.—The prospect for fruit crop is good. Blossom season was favorable.—C. H.P.

CUMBERLAND CO., N.S.

Wentworth.—Prospects for both small and large fruits are good.—A.B.

WESTMORLAND CO., N.B.

Shediac.—All kinds of fruit, especially currants and raspberries, made a good display of blossoms. Winter varieties of apples promise well; in some orchards, fall varieties, such as Duchess and Fameuse, are not so promising. Everything considered, prospects are good.—H.B.S.

KING'S COUNTY., N.B.

Sussex.—Fruit trees wintered well and apple crop promises to be large. Trees are in good condition, but are being attacked in some localities by a green grub, which feeds on the leaves and does the trees much harm. Spraying is much neglected.—J.C.H.B.

YORK CO., N.B.

St. Mary's Ferry.—Apples give promise of an abundant crop.—W.B.D.

TWO MOUNTAINS CO., QUE.

La Trappe.—The apple crop will be a very good one, especially Duchess, Alexander, Wealthy, McIntosh, Bethel and Ben Davis. The Flemish Beauty crop is very good but plums and cherries will be very scarce. Small fruits are good.—G.R.

ROUVILLE CO., QUE.

Abbotsford.—The outlook for apple crop is: Summer varieties, average; winter,

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S.S. Laurentic, July 24th
S.S. Dominion, July 31st
S.S. Megantic, August 7th

(All above steamers carry passengers.)

MONTREAL TO BRISTOL

S.S. Cornishman, July 17th
S.S. Manxman, July 24th
S.S. Englishman, August 7th

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Mention The Canadian Horticulturist when writing.

light; Flemish Beauty pear, average; European plums, light; Japan, failure; strawberries, currants and other small fruits a good crop.—J.M.F.

IBERVILLE CO., QUE.

Henrysburg Centre.—Prospects for apple crop are discouraging. The blossoms were light, but the set is very good. We are not looking for a heavy crop like last year. Strawberries, blackberries and that class of fruit are very fine.—J.S.

ISLAND OF MONTREAL, QUE.

Westmount.—Good prospect for apples and pears, the fruit being well set; cherries and plums, poor except the American plums, which are well laden; strawberries, late but a good crop; other small fruits, good.—R.B.

GRENVILLE CO., ONT.

Maitland.—The bloom on all varieties, except late winter apples, was fairly heavy and fruit has set well, with very few insects, except bud moth. Cherries of the sour class are heavily loaded. A medium crop of Americana plums is expected. Small fruits of all kinds promise a full crop. Apples are all growing fast, and there is no indication of much June drop.—H.J.

HASTINGS CO., ONT.

Belleville.—The early and fall apples promise a full crop, also the majority of the winter varieties. We had beautiful weather during blossoming time and for the setting of the fruit.—F.S.W.

PRINCE EDWARD CO., ONT.

Rednersville.—Pears, plums and cherries will be very plentiful. Apples blossomed well and, allowing for a heavy June drop, I believe the yield will be from 75 to 100 per cent. of a full crop.—H.D.

NORTHUMBERLAND CO., ONT.

Colborne.—The prospect for fruit in this section is good; Greenings and Russets, heavy bloom; Spys and Baldwins, not so good; all kinds are setting well.—W.E.

PEEL CO., ONT.

Clarkson.—Outlook for fruit is of the best, with possible exception of crab apples. The blossoms were profuse. The berry crop promises an abundance, but the bulk of crop will be late. Snow apples will not be so plentiful as last year, but the Spy will be much more in evidence.—W.G.H.

HALTON CO., ONT.

Georgetown.—The apple crop promises to be large. Percentage of full crop,—Spys, 60 per cent.; Colvert, 70; Balwin, 30; King and Russet, 90; Greenings, Mann, Ben Davis, 75; other kinds, 65 to 80. Plums and cherries, medium; pears, very light; small fruits, heavy.—F.J.B.

WENTWORTH CO., ONT.

Bartonville.—Strawberries, an abundant crop; raspberries promise well. Cherries seem to be going back, a great many of tehm blasting. Plums and pears will be a fair crop. Peaches of some kinds will be a good crop, but others poor. Apples from orchards bearing this year promise well.—H.F.B.

Winona.—Apples, plenty of bloom, fair prospects; early pears, light; later pears, fair. In plums, Japan, light; Lombards, full; Reine Claude, set full but have dropped until thin; other varieties, medium. Peaches, Crawfords, very full; other varieties, good, except Elberta. Sour cherries full crop; sweet, medium; grapes, fair.—M.P.

LINCOLN CO., ONT.

Jordan Station.—Small fruits and apples, plums and pears, fair to average; cherries quite light. Grapes promise well. Peach crop will be seriously diminished when the results of curl leaf fully develop. Where peaches were sprayed thoroughly, and early, with effective mixtures, little damage from curl leaf is found.—W.H.B.

NORFOLK CO., ONT.

Simcoe.—Spys and Kings, very full; Baldwin, fair; Greenings, good; Russets, Ben Davis and fall varieties, light; strawberries, heavy.—J.E.J.

ESSEX CO., ONT.

Ruthven—Strawberries, good crop; peaches and plums, good. In apples, Kings, Greenings and Ben Davis are heavily load-

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You believe that money spent for a mowing machine or a binder is well invested. Still you use these machines only a few days in the year.

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The I. H. C. spreaders pulverize and make the manure fine, and spread it evenly over the ground just as thick or as thin as may be required. The manure is placed upon the ground in a condition that is at once available for plant life. All is washed by the first shower into the soil—none is wasted.

The good effects upon the crop are immediate and the permanent benefit to the land is greater than when the manure is spread by hand. There is no question but that land manured by an I. H. C. manure spreader will give an increased yield of from two to ten bushels per acre over land where manure is spread by hand.

Consider the labor saved, the more agreeable work, the better crops, the more fertile condition of the land—is not an I. H. C. manure spreader the machine you should have?

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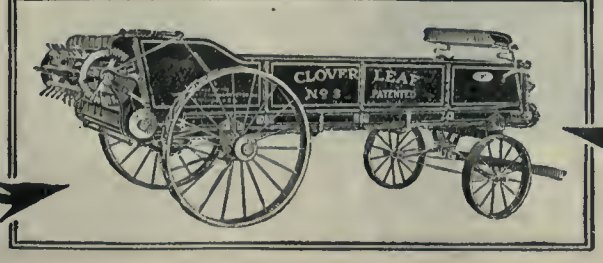

INTERNATIONAL HARVESTER COMPANY OF AMERICA
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ed; very few Baldwins or Spys. Pears promiso a good crop.—J.O.D.

SIMCOE CO., ONT.

Craighurst.—Early apples will be light on account of the large crop last year; fall apples, medium. Winter varieties are setting a large crop. Pears are better than ever known here. Small fruits will be above average.—G.C.C.

BRUCE CO., ONT.

Walkerton.—Strawberries will give half a crop; raspberries, currants and gooseberries, full; cherries, good; plums, medium; early apples, light; winter apples promise a full crop, especially Spys, Fameuse, Greenings, Ben Davis and Mann.—A.E.S.

BRITISH COLUMBIA.

In his report after a tour through the province, early in June, Mr. Maxwell Smith, Dominion fruit inspector, sums up the conditions as follows: The apple crop will be good all through the province; pears will be light; plums and prunes promise well; peaches will be very light owing to the severe weather; strawberries will be about half a crop; cherries are in doubt; while raspberries and blackberries promise a full crop.

A Visit to Fruit Growers

An editorial representative of THE CANADIAN HORTICULTURIST visited a number of fruit growers in Oshawa, Bowmanville, and Newcastle last month. Some excellent orchards were seen. Most of the bearing orchards of the locality appeared to be well cared for, and many new ones have been set out.

The Oshawa Fruit Growers Limited is an organization that is progressing and that has been of great benefit to the growers of that district during the four or five years of its existence. Mr. W. H. Stainton, of Oshawa, gave an illustration of the value of co-operation. From an orchard, mostly Spys, he took 260 barrels last season. His net returns for this was $565, or an average of $2.17 a barrel. As buyers were paying only $1 to $1.25 a barrel, Mr. Stainton's profit due to co-operation can easily be calculated.

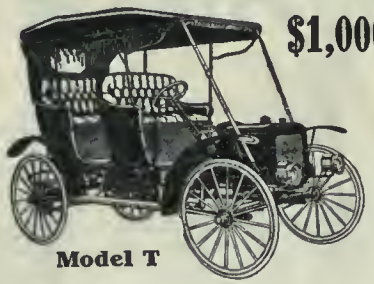
The value of thinning apples was referred to by many of the growers. Mr. Elmer Lick, of Oshawa, stated that it is particularly necessary with heavy bearing varieties, particularly on Wageners. Mr. W. H. French, of the same place, said that the saving of labor at harvest time will more than pay for the cost of thinning and that the work gives big profits in increased size, quality and color of fruit.

Some valuable information was given by Mr. E. C Beman, of Bowmanville, on the culture of pears. Other pointers of interest were picked up from various growers and will be referred to in later issues of THE CANADIAN HORTICULTURIST. The prospects for fruit in the district seem to be good with the exception of Baldwin apples, which are bearing well in some orchards and a failure in others. The blister leaf-mite is causing some damage on apple and pear trees.

Fruit growers will be interested in an article on "Thinning Fruits" that appears in the July 1st issue of *Farm and Dairy*, one of the companion papers of THE CANADIAN HORTICULTURIST. The article gives the experiences of men who have practised thinning and it shows that the work brings profitable results. Being a general farm paper, *Farm and aDiry publishes in each* issue a number of practical articles on fruit growing and gardening, in addition to information and discussions on all questions that have to do with the farm, dairy, live stock, poultry and the home.

I am much pleased with THE CANADIAN HORTICULTURIST, and find in it many useful hints that have helped me considerably. The paper is all that could be desired and I consider it well worth the money.—T. M. Gavaza, Truro, N.S.

The Tudhope-McIntyre



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The high wheels and solid rubber tires make this Motor Carriage unequalled for solid comfort and safety. No danger of punctures and blow-outs.

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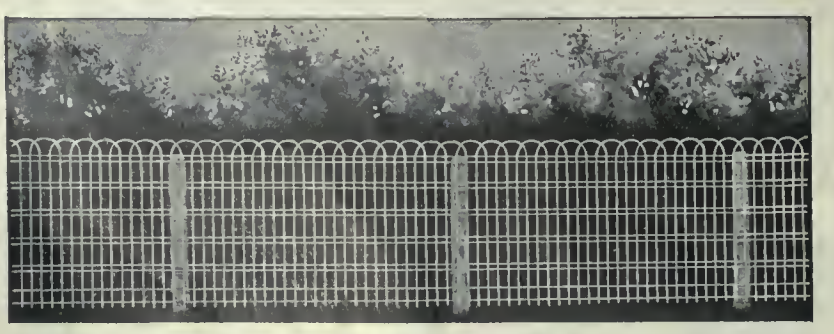

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13

Arsenate of Lead

Editor, THE CANADIAN HORTICULTURIST: I have noticed with considerable interest the articles in the June issue of your valuable paper in reference to spraying, and we wish to compliment THE CANADIAN HORTICULTURIST on the excellent campaign it is conducting to actively bring the attention of growers to thorough and effective spraying.

There have naturally been many conflicting opinions with regard to the proper poisons to use for the destruction of leaf-eating insects. Each poison has its strong supporters, but the majority of experts and authorities throughout Canada and the United States have adopted arsenate of lead as a safe and sane spray.

The writer has noted an article in your recent issue advising the essential specifications for arsenate of lead. It may be of interest to your readers to know that we have been conducting an active campaign in the United States for the past two years for a National Pure Insecticide and Fungicide Act along the lines of the Pure Food and Drug Act. This bill was drawn and fathered by the Association of Economic Entomologists, assisted by the Official Association of Agricultural Chemists. The more representative manufacturers of the various insecticides and fungicides have given this agitation their strongest support, although naturally there has been considerable opposition from some quarters. A section from the bill with regard to arsenate of lead is quoted herewith:—

"Section 7. That for, the purpose of the Act an article shall be deemed to be adulterated—in the case of arsenate of lead:

"1. If it contains more than 50 per cent. of water;

"2. If it contains total arsenic equivalent to less than 12½ per cent. of arsenic oxide (As 2 O5);

"3. If it contains arsenic in water soluble forms equivalent to more than 0.75 per cent. or arsenic oxide (As 2 O5);

"4. If any substances have been mixed and packed with it as to reduce, lower or injuriously affect its quality or strength, provided however, that extra water can be added to lead arsenate (as described in this paragraph), if the resulting mixture is labelled "Lead Arsenate and Water," the percentage of extra water being plainly and correctly stated on the label."

The above is lowest form of lead arsenate which will be permitted to be sold as such under the meaning of this Act.

In the gypsy and brown tail moth infested area tributary to Boston the Government and state departments, who have supervision of the work for the suppression of these moths, after very careful investigations are demanding the following specifications:

"1. Not less than 50 per cent. actual lead arsenate;

"2. Total arsenic equivalent to not less than 15 per cent. arsenic oxide (As 2 O5);

"3. The material must not contain arsenic in water soluble forms equivalent to more than 0.75 per cent. arsenic oxide (As 2 O5);

"4. The arsenate of lead to contain no injurious or inert ingredients."

These latter specifications as required in the biggest consuming field in the country have been found to be essential and were drawn by the best experts in the work. Only a few of the manufacturers this season have been able to furnish a product that will uniformly conform to the above specifications.

I note that in a recent article in your paper it was advised not to buy any arsenate of lead, unless it had a guaranteed analysis of at least 16 per cent. poison. We presume that by this the party meant at least 16 per cent. arsenic oxide. This is a very well-taken point, but is not wholly necessary as 15 per cent. arsenic oxide will destroy any leaf-eating insect if properly applied. Therefore, if a brand of arsenate of lead is offered which is guaranteed to contain at least 15 per cent. arsenic oxide, then the essential specifications which should be required are that the material be properly combined with lead oxide, so that it may have sufficient carrying and adhesive qualities, and still more important that it have less than 0.75 per cent. of soluble arsenic.

Such a guarantee is offered by The Grasselli Chemical Co., on Grasselli brand, which not only covers the actual arsenic oxide contents, but also covers every essential point which is necessary to make up a uniform product of the highest quality. A good motto to always have before one is: For effective spraying, obtain the best material, beat the bugs to the foliage, and above all, be thorough."—R. G. Harris, Cleveland, Ohio.

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WEST END GREENHOUSES, Peterboro, for sale or to rent. In good condition and well equipped for a large trade. Is doing a good paying business. For particulars, address G. Walter Green, proprietor, Peterboro, Ont.

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IF YOU WANT a position, want extra help or have a surplus lot of stock you want to get rid of, advertise in this column.

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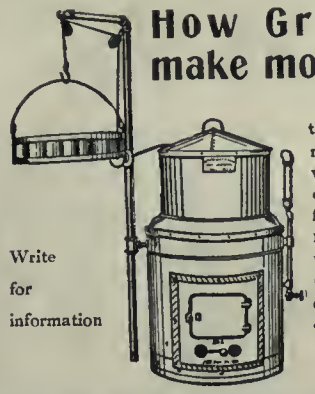
WANTED — Persons to grow mushrooms for us at home. Waste space in cellar, garden or farm can be made to yield $15 to $25 per week. Send for illustrated booklet and full particulars. Montreal Supply Co., Montreal.



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In every retail and wholesale Grocery Store—on every Farm—there is an enormous waste of perishables every season. This means much money to you, Mr. Farmer—Mr. Grocer, that can be saved with a MODERN CANNER. The MODERN CANNER only costs $30, $60 or $90—three sizes—but it pays you handsomely, even before the first season has expired. It Cans 1,000, 2,000 and 4,000 Tins in 10 HOURS. A mere youngster can operate it. Does the work easily, without waste, and does it mighty clean. MODERN CANNED goods command a high price—because you Can them FRESHLY. Our catalogue gives you mighty money-making information, and it's free.

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The Shingle with Free Guaranty against Lightning

Send to-day for our free book "Safe Lock Shingles" with details for our free Guaranty which protects you against loss by Lightning—the most liberal roofing offer ever made. Safe Lock Shingles are not expensive. This handsome home was built throughout from sheet steel and covered with Safe Lock Shingles at a cost of $2,000.00. You could not duplicate it in any other construction at anything like the same cost. Safe Lock Shingles are made of heavy galvanized steel, after British Government Specifications for Admiralty work. There is nothing better made anywhere. Safe Lock Shingles never pull apart, because they are locked together, top, bottom and sides—no other shingle is. It is also the only Shingle that protects the nail from weather. A Safe Lock roof was never unroofed in any storm. We also manufacture Acorn brand of Corrugated Sheeting—the best for low priced construction. Our lightning guaranty is also given with Acorn built buildings.

Send to-day for our book "Truth about Roofing" and learn about this new, better and more durable roofing.

Illustration of Building

Metal Shingle & Siding Co.

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PRESTON, - ONT.

Co-operative Growers Meet

At the annual meeting of the Co-operative Fruit Growers of Ontario, held in Toronto June 15, the question of securing incorporation for the central organization was discussed. It has been felt by this body that this step is necessary in order to do the best work for the local associations. Incorporation would enable the organization to act as buying and selling agent for affiliated associations. It is not probable that the central body will do much in the way of selling for a while, but it can render valuable service in purchasing supplies and, thereby, saving a considerable sum for the local associations. The executive was instructed to proceed in this matter as soon as possible.

In his report, which was read by the secretary, Inspector Backus pointed out that one man can not satisfactorily do all the work in this connection that is required by him and that other instructors should be appointed this season. He reported that outside buyers are constantly endeavouring to break up the co-operative movement and that the associations should, therefore, stick together and work harmoniously. He pointed out also that the associations that are practising up-to-date methods in spraying, pruning, cultivation and thinning and so forth, are the ones that are producing the most No. 1 fruit.

The need for more cold storge facilities for storing and shipping fruit was strongly advocated. The feeling of the meeting was that the Government should render more assistance than now is available for the erection of cold storage warehouses.

The weekly report on crop conditions and prospects with information on prices will be continued by the secretary and this work will be extended. The old executive committee was re-elected as follows: President, D. Johnson, Forest; 1st vice-pres., Robt. Thompson, St. Catharines; 2nd vice-pres., Jas. E. Johnson, Simcoe; 3rd vice-pres., Elmer Lick, Oshawa; sec.-treas., P. W. Hodgetts, Parliament Buildings, Toronto.

The Lesser Apple Worm

L. Caesar, Ontario Agricultural College

The publication of a bulletin on the "Lesser Apple Worm" by Professor Quaintance of Washington, D. C., in Jan. 1908, aroused no small alarm last summer among apple growers lest a new pest with similar habits to the codling worm might be in our midst.

The lesser apple worm received its present English name from Dr. Fletcher and was reported by him as present in Ontario several years ago, so that it is not a new insect. Its native food is apparently the fruit of the hawthorn. It will, however, also attack the apple and more rarely the plum. Dr. Fletcher seemed to think that the insect, although doing some injury in several provinces of Canada and especially in British Columbia, was not destined to become very destructive.

A number of fruit-growers last year thought that their apples were severely attacked by this pest, but when, at the request of the writer, specimens were sent to the college, not more than five per cent. of the injury could be attributed to the lesser apple worm. In our own observations last summer and autumn in different parts of the province, only a small percentage of the worm-injured apples in any orchard showed the characteristic work of the insect.

The lesser apple worm has a life history very similar to that of the codling worm, and in the worm or larval stage it can only be distingushed from the latter by a close and careful study. It is, however, slightly smaller, never becoming more than about three-eighths of an inch long when full grown. The moth is about the same size as the codling moth but quite different in markings.

The injury done to the fruit differs from that of the codling worm in that the worms feed near the surface of the apple, seldom going to the core. Most of the injury takes the form of shallow cavities around the calyx end, often accompanied by blotch mines eaten in an irregular manner under the adjoining skin. A considerable proporton of ugly, irregular, blotch mines are also made on the sides of the apple, especially where a leaf or another apple touhces it. These shallow surface injuries greatly disfigure the fruit and render it unsaleable. Although no definite experiments have, so far as we know, been conducted, yet it is believed with good reason that the same spraying as controls the codling moth will also control this pest.

The Cabbage Root Maggot

Prof. W. Lochhead, Macdonald College

In a recent report issued by the State Entomologist of Minnesota on the results of two years' experimentation with many substances for the control of the cabbage root maggot, Professor Washburn states that the best results were obtained by the use of a decoction of hellebore. The mode of treatment is as follows:—

"Steep two ounces of white hellebore in one quart of water for an hour, then dilute with water to make one gallon of the decoction. Apply with watering can, from which the rose has been removed, a few days after plants are set out; five days later apply again, and a third application five days after the second. Use the solution five or six times more, at weekly intervals. It takes approximately between two and three hours to treat 1,000 plants, and the material required for this number costs 50 cents at retail. About a teacupful is poured around each plant." The following experiments were tried:—

1. Dipping plants in arsenate of lead solution (10 different experiments with this substance); not satisfactory.
2. Surrounding the base of the plants with bran and glue, with sawdust and glue, and with bran, paris green and glue; not satisfactory.
3. Sprinkling a thin paste of carbolic acid and lime about the base of each plant; not satisfactory.
4. Spraying the plants tbree times at intervals of five days with carbolic acid emulsion; not satisfactory.
5. Spraying the plants with a decoction of hellebore.
6. Fitting tarred paper and tarred felt cards tightly around the bases of the plants.

Satisfactory results were obtained with the tarred felt cards, but not with the tarred paper cards. These results are interesting, for they explain the failure of many growers to grow cabbages successfully when tarred paper cards were used to prevent the young maggots from crawling down to the roots. It makes a big difference whether felt or paper is employed. Our cabbage growers should try again the tarred felt cards and determine if they have better results than they had when they tried the tarred paper.

A Colonial Training School has been established at Waterville, N.S., with Miss Eunice Watts as principal. The object of the school is "to give women with capital who desire to buy land, a thorough knowledge of the country and its customs before settling in Canada." The course will include horticulture in all its branches, poultry, agriculture, dairying, forestry and many other subjects, a knowledge of which is necessary on the farm. For further information write to Miss Watts.

I like THE CANADIAN HORTICULTURIST very much and would not be without it as long as I am engaged in fruit growing.—E. F. Robbins, Kings Co., N.S.

Pear and Apple Blight

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Mention The Canadian Horticulturist when writing.

A Valuable Bulletin

Reviewed by Prof. W. Lochhead

The Ontario Department of Agriculture has published a valuable Bulletin, No. 171, on "Insects and Fungous Diseases Affecting Vegetables," prepared by Dr. Bethune and Messrs. Eastham and Howitt of the Ontario Agricultural College.

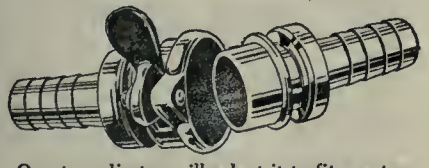
The chief injurious insects and fungous diseases of the various vegetable crops are described at some length, so that the reader may understand the history and mode of life of each pest discussed. The illustrations that accompany the text aid very materially in the identification and understanding of the forms described.

Considerable trouble has evidently been taken to give clear and explicit directions for the control of the insects and fungi under consideration. In some cases it will be claimed that there is need for more effective and practicable remedies, but it can be said that the remedies advocated are the best that have as yet been discussed. Formulas are given for the preparation of the main insecticides and fungicides that the vegetable grower will have occasion to use.

The appearance of this bulletin within three years of the publication of Bulletin No. 150, by Messrs. Lochhead and Jarvis, dealing with the same subject, indicates a widespread interest, and a need for more information on an important phase of work. The bulletin is one that should be in the hands of every vegetable grower.

A Motor Car For $550.—In view of the prices charged for the conventional type of automobile, it seems hardly possible for a thoroughly satisfactory automobile to be sold at $550; yet, the Tudhope-McIntyre Co., of Orillia, Ont., have succeeded in doing it, by making a new type of machine. Discarding altogether the low wheels with their costly and troublesome pneumatic tires, and the heavy construction of the ordinary auto, they have followed the lines of the universally popular buggy, with its smooth riding high wheels, puncture and trouble-proof solid rubber tires, resilient full elliptical springs and light weight. With its air-cooled, two-cylinder engine, the Tudhope-McIntyre Motor Carriage weighs less than 1,000 pounds, while the average auto weighs a ton. It has speed of from 5 to 25 miles an hour, and will easily cover 25 miles on one gallon of gasoline. The total cost of running it, including gasoline, oil and repairs, averages very little over one cent a mile, while the ordinary auto costs five cents a mile or more for tires alone. For the doctor, the merchant, the lawyer, the salesman, the real estate man or the farmer the Tudhope-McIntyre Motor Carriage costs rather less than a horse and buggy, and is much more convenient and serviceable.

The St. Catharines Cold Storage and Forwarding Co., St. Catharines, Ont., is experimenting with shipments of strawberries to Winnipeg and other points in the West. Should the attempt prove successful all that stands between the growers and the Western markets is excessive express rates. The growers of the Niagara district want a through rate to the West and are waiting for the Dominion Railway Commission to adjust this and other matters that have to do with express rates on fruit.



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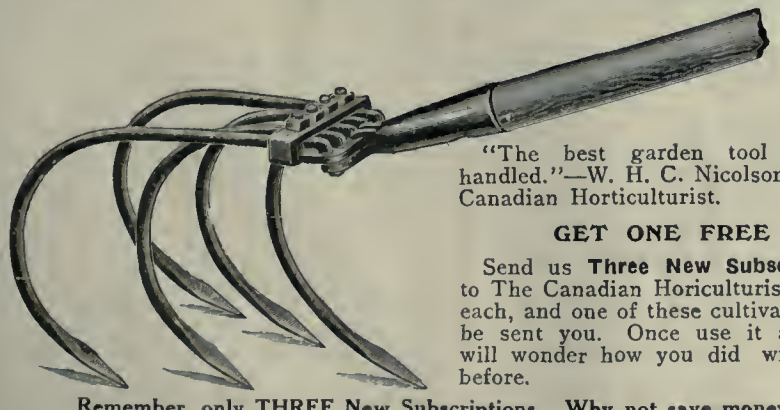

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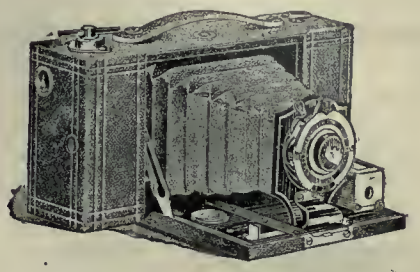

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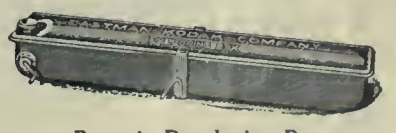

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The Daylight Saving Bill

Editor, THE CANADIAN HORTICULTURIST,—The measure which was brought before the House of Commons during the past session and which is commonly known as the "Daylight Saving Bill," has been referred to a select committee to obtain evidence, and will no doubt be brought before the House again next session, and, unless strong representations are made, it will doubtless become law. This bill will vitally affect fruit growers and farmers generally, particularly those branches of agriculture which have anything to do with the catching of trains.

In the first place, it seems to me that the measure is intended to benefit a class of people who already have too much consideration at the hands of our Legislatures. It is proposed to put the clock back 80 minutes so that the city man will get up an hour and twenty minutes earlier than is his usual wont and that there will be that length of time for recreation after the close of business. If the measure becomes law, it means that the railway time tables will be made to conform to the new state of affairs, and the farmers who have to ship their milk to the city on the early morning trains, and who are obliged to start milking anywhere between half past four and five in order to accomplish this, will virtually have to start their operations an hour earlier. I feel quite confident that the majority of farmers do not realize what this means. The farmer does not need to have the clock put back, as his business calls him early in the morning, and in the busy season such as haying and harvest, very often necessitates his working quite late in the evening. An hour and twenty minutes tacked on to the beginning of his day to suit city men who are too lazy to get up in the morning, is asking too much when one considers the very large proportion which the farmers form of our total population. With the fruit growers, especially in the Niagara district, the change of time will affect them at the latter part of the day, especially during the summer and fall, during the picking season. All those engaged in this business will remember that it is a very common thing to have to wait until the dew has become dried up on the bushes and trees before one can pick. This is particularly so in connection with berries, and if the trains are scheduled to start one hour and twenty minutes earlier than they are at the present time, it simply cuts that much time off the picking day.

A committee was formed last winter to confer with the representatives of the Canadian and Dominion Express Companies, to induce them if possible to rearrange our service, so that the growers would have a longer time to pick, but their great excuse was that they must be into Montreal in time for the early morning market, and in order to do this, it was necessary to start the trains when they did. If the Montreal market is held about eight o'clock under the present arrangement, I suppose the same time will hold good under the new regime, and this will necessitate arranging the schedule of trains according to the clock.

The matter in my opinion is too serious to be allowed to pass without some protest, and I therefore take the liberty of bringing the matter before you, and if the city men want to save the daylight, let the manufacturers open their factories at half past five a.m. and close at half-past four; they will then accomplish the same thing without adopting the childish method of putting the clock back.—A. E. Kimmins, Winona, Ont.

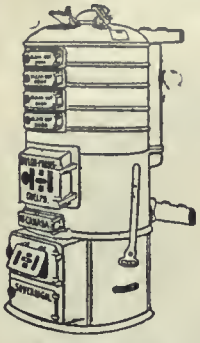
Export Apples in Boxes

J. A. Webster, Sparta, Ont.

On apple boxes there is no use for the terms, "No. 1," "No. 2," or "No. 3," all boxed apples being clear of defects. I would advocate the use of some term, such as "Fancy," or "Choice," to designate grade and also the "count" of apples to designate size, and some term to designate under-colored fruit. I found, when in Great Britain last winter, that a buyer of boxed fruit could tell the size of the fruit that he was getting by counting the number of apples along the rows seen through the corner of the box, thereby verifying the stamp on the box. The count stamped on the box is a better way of designating size than the terms "No. 1" and "No. 2."

We cannot use too much care in delivering our apples in unbruised condition to the British market. I have seen apples, which had been handled much more carefully than eggs, selling at 20 cents each. These were stored each in its own nest of tissue paper, ranged on shelving about the wall. They were of varieties no better than our Canadian best varieties, but without a flaw or bruise.

"SOVEREIGN".



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Vol. XXXII AUGUST, 1909 No. 8

Apple Growing on Prince Edward Island

Theodore Ross, Charlottetown

THE apple industry in Prince Edward Island is yet in its infancy, if indeed it can be said to exist at all. For a great many years apples have been grown, but little progress was made until the introduction of the improved varieties about twenty years ago. Up to that time the agriculture of the province consisted altogether in the raising and marketing of hay, oats and potatoes, and among the more progressive, of heavy horses. Then the apple-tree agent made his appearance, and aided by catalogues, with highly colored illustrations of fruit, sold a few trees to almost every farmer on whom he called. Full instructions were generally given for the planting of the trees, and in most cases followed, but after that the trees were expected to take care of themselves, particularly if a fence were put around the plot to protect them from the stock. As they were generally planted in a potato patch, they did all right for the first two years, but could not make much growth in competition with the grass crops and were injured, if not completely destroyed, by insects. The rapid growing varieties were frequently early bearing and occasionally fruited the second year out, which led to their being better attended to and as a consequence to their giving better satisfaction. The agent is not altogether to blame for recommending early varieties.

There were exceptions, however, to this general condition. In some cases a whole acre, or perhaps two acres or even five were set out, and given as good attention as the owner knew how to give them, and as they were nearly all early varieties, more than fulfilled expectations, as long as there was a ready market for the fruit. These successes led to the general giving of larger orders and at the present time there are whole townships with almost every farmer the proud possessor of from half an acre to five acres of young trees. Most of these were bought on the recommendation of the tree-agent, who generally sold trees that made good growth and fruited early, and then supplied whatever the nurserymen chose to send. The more thoughtful attended the meetings of the Fruit Growers' Association and orchard meetings that were held throughout the province, and which were addressed frequently by experienced fruit growers from Ontario and Nova Scotia. These men advised the planting of the winter varieties, particularly those that succeeded best in their own provinces, such as the Baldwin, Spy, Ontario, King, Wealthy, Ben Davis, Gravenstein, etc. It did not take many years to find out that some of these varieties were not adapted to this province and, as experiments of this kind are expensive for the individual, the provincial department of agriculture set out eight orchards in different localities for the purpose of ascertaining the best varieties of commercial apples for our people to grow. This question comes up annually at the Fruit Growers' Association. At the last meeting those present were ready to agree on only the Duchess, Wealthy, Wolf River, Ben Davis, Star and Alexander. Everyone, however, seemed ready to agree that the Ontario, Baldwin, Spy, King, Fameuse and Gravenstein cannot be grown with profit in this country.

A large number of trees have lately been planted, and more apples, particularly of the early varieties, have been grown than could be marketed in the immediate vicinity of the producers, so that for the last two years, quite a lot of good fruit has been left on the trees for want of a market, and this notwithstanding the fact that from 3,000 to 3,500 barrels are imported every year.

This led at the meeting of the Fruit Growers' Association in 1908 to the appointment of a committee to devise some means of disposing profitably of the rapidly increasing quantities of fruit. The result is, that the Co-operative Fruit Company, Limited, has been incorporated for the purpose of packing and marketing fruit, with a capital stock of $10,000 divided into 2,000 shares of $5.00 each. Already about 150 shares have been subscribed. Stock for 1,000 barrels has been ordered and it is expected that packing will be begun this autumn. The intention of the company is to try to get possession of the home market, and to further extend operations as the business seems to warrant.

This is, as it appears to me, the status of fruit growing in Prince Edward Island. It is as yet subsidiary to the growing of oats and potatoes. Those who have given the most time to it are most enthusiastic over the prospects and believe that Prince Edward Island will yet rival in its fruit industry the far-famed Annapolis Valley.

For Maritime Readers

At one time, maritime province horticulturists felt that THE CANADIAN HORTICULTURIST was confined in subject matter to Ontario alone. During the past year or so, this feeling has changed, as now we know that it is published in the interests of all the provinces. THE CANADIAN HORTICULTURIST should be in the hands of all persons who grow fruit, flowers and vegetables in New Brunswick, Nova Scotia or Prince Edward Island.—W. W. Hubbard, Secretary of Agriculture for New Brunswick.

Blackberry Culture

John Ferguson, Murches', N. B.

With the exception of a few late raspberries, the berry crop will be out of the way by the time that blackberries ripen. These should be harvested with great care when intended for market and, if possible, when dry.

As soon as the picking is finished, begin at once the removal of old canes. Cut these off close to the ground with a corn knife, or better yet a short blade fastened into a two-foot handle. Then, the principal canes should be shortened to four or five feet and the laterals to about twenty inches; when pruned in this way, the fruit will be larger, and it will prevent the setting of more fruit than the plant can mature, as is often the case when left unpruned.

When done pruning, gather up the old canes with a fork and burn immediately. Then lift the new canes and crowd them between two wires stretched from post to post along the rows. All suckers which come up between the rows should be treated as weeds.

Blackberry plants increase by means of suckers; that is, plants that start from buds formed underground on the roots. These sucker plants are best taken up and planted in the fall, but they are not so good as those grown from root cuttings, which anyone can make readily; from a few hills one may obtain hundreds of plants by the next fall.

The Four Storey Extension That Mr. E. D. Smith is Making to His Jam Factory at Winona, Ontario

Built of reinforced concrete. First factory was finished only three years ago and now the plant is being more than doubled. The kitchen will be finished in white enamel and all the help will wear white to ensure perfect sanitation. The "E. D. S." brand of jams and jellies have won great popularity in short time, and they deserve it.

Fruits for the Jam Factory and Cannery

E. D. Smith, Winona, Ontario

THE quantity of fruits used by the jam factories in the Niagara peninsula has become a very large factor in the fruit industry of that district. Four years ago the quantity was extremely small because practically all the jam manufactured in Canada was at that time made of something other than the fruit mentioned on the label. Almost the entire product of the jam factories of Ontario was what is called "compound" jam. The great art in making "compound" jam was to use as little fruit as possible. Some of the manufacturers got it down so fine as to use none at all. The first day that I started my factory, a gentleman called representing a jam factory in the province of Quebec. He said, "I understand you are going to make jam out of pure fruit." I said, "Yes, that is my intention." He said, "I don't see how you can make it pay. How in the world can you compete with us? We make pure fruit jam and we don't use a pound of fruit." To-day there are two factories in the Niagara district making their jam entirely out of fruit as described on the label. In my own factory—a cut of the addition to which, made this year, is shown in this issue of THE CANADIAN HORTICULTURIST—I am using nearly a quarter of a million boxes of strawberries, one-quarter of a million boxes of raspberries and other fruits such as currants, gooseberries, peaches, plums and so forth, in like proportions, although the two chief fruits that are needed for jam are strawberries and raspberries.

SANDY BERRIES NOT WANTED

Strawberries brought a comparatively low price this year, although I believe a fair margin of profit can be made growing strawberries even at the prices of this year if gone about in a business-like way, such as is pursued, for instance, by Mr. James E. Johnson of Simcoe, Ont., who never thinks of growing a crop without mulching the vines in the winter. By this means, he is assured of a crop. He draws the mulch from off the vines in the spring, leaving it between the rows where it is tramped down and forms a mulch which holds the moisture and makes it clean for the pickers and provides clean berries and not berries all spattered with sand as is the case in a patch that is not mulched. These sandy berries have to be washed at the factory. This spoils them to a great extent. I would not give for sandy berries more than half the price that I would for clean ones.

CAUSE OF LOW PRICES THIS YEAR

The low price for strawberries this year is due to two causes: first of all, of course, on account of a large crop, but I think the price would have been at least one cent a box more had the canneries of the country been absorbing the usual quantity of strawberries, whereas, as a matter of fact, the canneries absorbed very few. The canneries, the wholesale merchants and the retail merchants over all the country are pretty well loaded up with strawberries. Canned strawberries have not been in demand by the public as they were a few years ago. This has arisen largely from the high prices that prevailed two years ago.

Looking at it from the growers' point of view it may seem strange that high prices are injurious. Nevertheless, I firmly believe that no greater calamity can happen to the growers of any kind of fruit than to have extravagantly high prices in a year. The high prices of two years ago for all kinds of fruit, caused the canners necessarily to advance their prices. This not only cut off the consumption, but it caused thousands of consumers over the country to turn their attention to some other line of fruit that would be cheaper and, as foreign fruits, such as prunes, bananas, figs, dates and others, are becoming cheaper each year, consumers, finding this out, bought freely of these foreign fruits and they have stuck to them ever since and will continue to stick to them so long as they can get them at a reasonable price compared to our own home-grown fruits; whereas, had they not been forced to look to other sources of supply by the extravagantly high prices of Canadian canned fruits in 1906, they would still be buying our canned strawberries and other fruits as they formerly did.

NOT ENOUGH RASPBERRIES

In regard to raspberries, there are not enough of them, in my judgment, grown in this country yet. For two years past neither the canneries nor the jam factories could get enough raspberries; and yet raspberries are the easiest things to grow in the whole fruit line. They grow over a wide range of territory, the plants cost but little and they come into bearing quickly. They are easy to cultivate and they will grow on a fairly wide range of soil. Moreover, in the factories they are easily handled. We can handle raspberries in the factory with one-quarter of the help that we can strawberries.

That the growers are getting remunerative prices may be judged by the fact that I can to-day buy raspberries in Eng-

land, have them packed in bulk, brought out here to Canada, freight paid, and a duty of one and one-half cents a pound which is levied not only on the pulp but on the whole weight of the package, and still get them laid down here at Winona cheaper by at least one-half cent a pound than I can buy raspberries in Canada today; or have been able to buy them for the last three years. If the British grower can make any money at the price that he gets for his raspberries, surely the Canadian grower, with all these advantages of freights and duties in his favor, must be making money, if he is following proper methods of growing the fruit.

GROWERS NEGLECT SOIL FERTILIZATION

One thing that the growers in the Niagara district lack more than another, is proper fertilizing of the soil. Taken as a whole, the cultivation of the fruit farms in the Niagara district is excellent but, generally speaking, the fertilization is wretched. Thousands of acres are being planted out in fruits annually and these fruit orchards are drawing heavily from the soil, whether small or large fruits, and little is returned to the soil to compensate for the drainage. Of course, there are scores and scores of exceptions. I am speaking of the general average. If the high standard of quality of fruits for which this peninsula is famous is to be preserved or improved, much heavier expenditure must be incurred by the growers for fertilizing material.

LARGE FIRM BERRIES WANTED

As to varieties of strawberries and raspberries for the factories, we want firm sorts of strawberries such as the Williams and the larger the berries the better. One of our chief difficulties in connection with strawberries is the getting of help. I have never had enough strawberries put up yet; not that I could not get the berries, but that I could not get the help. In view of this it is a great hardship when the Ontario government makes severe restrictions as to the age of children who can work at hulling strawberries; whereas a child of any age can pick strawberries in the field with the boiling sun on its back, but they are not allowed to sit in a cool shed and pull the stems off the same strawberries; and the Dominion government throws impediments in our way to prevent us from getting help across the river, which is the only available source of supply. Now, a person can pull the hulls off three crates of large berries while pulling them off one crate of small berries. Therefore, it is extremely important to the jam factories or canning factories to have large berries and, to have large berries, the method adopted by Mr. Johnson of Simcoe, along with plenty of manure, is assured. In raspberries, the chief thing is to have a bright berry. The Cuthbert is the best raspberry that I know.

Apple Production in New Brunswick

H. B. Steeves, Shediac

IT has been said that the province of New Brunswick is behind her sister provinces of Ontario and Nova Scotia in agricultural productions and methods. If it is true in any one crop more than another, it is in the production of apples; and yet the difference should not be as great as it is. "Tickle the soil, and it will laugh," is not applicable to New Brunswick where fruit is concerned except under certain conditions. The two main conditions that have heretofore been overlooked are proper varieties and proper cultivation.

Time was when the farmer made his selections of varieties with no further information than that given by the nursery agent and by the beautiful illustrations shown. In the spring, the trees were planted and cared for with about the same thought and information. We know the results. Others, with more prudence, planted varieties that were popular and productive in the Annapolis Valley and southern Ontario. The results were not satisfactory. Hence, the idea prevailed among farmers that New Brunswick was not adapted to the production of apples.

EXPERT OPINIONS

The impressions are changing, indeed, have changed. Education and experiment have shown that large areas of the province are well adapted to the profitable growing of certain varieties. Such competent judges as Mr. R. W. Starr and Prof. F. C. Sears, reporting upon the exhibit of apples at the Maritime Winter Fair of 1906, had this to say of New Brunswick apples: "York county had a very fine collection in the one which took first prize. . . The McIntosh, Ontario and Fameuse were particularly fine, and the Emperor Alexander, Fallawater, Bishop Pippin and Spy were good." King's, Charlotte, Carleton and Albert counties showed certain varieties "good." Queen's and Westmoreland counties sent no exhibit but could probably grow just as good apples as any of the counties represented.

Mr. George H. Vroom, Dominion Fruit Inspector, speaking before the New Brunswick Fruit Growers' Association, recently, said: "There are here some of the finest apples I have ever seen. Take, for instance, the Alexanders, Wolf Rivers and Dudley Winters. No better can be grown anywhere in Canada." Again, "No place I know of can grow Bishop Pippins equal to New Brunswick." Some of our Nova Scotia friends may scoff at the Alexander. They have not taken into consideration the fact that the New Brunswick Alexander is of a better flavor and is certainly a better keeper than that grown in the Annapolis Valley.

The growing of apples in New Brunswick is beyond the experimental stage, but our farmers are slow to grasp the fact that apples could easily be made one of their most profitable crops. The St. John River valley, with the possible exception of its two northern counties, gives great promise in the production of fruit. King's, Albert, Westmoreland, and Kent counties

Not Only Apples Grow Successfully in New Brunswick—Pears Do Equally Well in Some Districts
The Pear Tree Illustrated was Photographed on Farm of Mr. Wm. Cameron, near Fredericton

are also coming to the front. In some instances the results have altogether excelled expectations. The parts of Kent and Westmoreland along the Northumberland Strait, have not as early nor as warm-growing seasons as the other parts of the province mentioned, but have probably an advantage in not having as severe frosts in winter, and less liable to late frosts in the spring owing to their proximity to the water.

Apple Trees Covered with Blossoms
On Grounds of the Misses Thomson, Rothesay, N.B.

ILLUSTRATION ORCHARDS

Much good has been done by the planting of government illustration orchards. If these orchards are properly cultivated and cared for, and later, demonstrations be given in orchard cultivation, pruning, spraying, and packing, they should prove a great boon to this comparatively new agricultural industry in this province.

We have a large and well-equipped cold storage plant at our own port of St. John. We have access to the neighboring port of Halifax. With the selection of suitable varieties, with the planting of larger areas so that production may be sufficient to bring in buyers, and with proper attention to spraying and packing, New Brunswick has good prospects for a fair share of the apple export trade.

Scene in "Sunny Brae" Orchard at Shediac, New Brunswick
Owned by Mr. H. B. Steeves

Lawn and Garden Hints for August

IF the vegetable garden has been well cared for and cultivated, there will not be much to do in August, more than to keep the soil stirred and watered. Some vegetables may still be sown, such as stringed beans, early maturing peas, radishes, early flat turnips, beets for greens and anything that will grow quickly.

Lettuce may be sown and be satisfactory if kept well shaded during the hot weather. To have lettuce for fall use, it may be sown now and transplanted later to a cold frame.

The early crop of celery should be blanched. Use either earth or boards.

There are many excellent vegetables that are little known. Corn salad sown about the first of September and protected when cold weather comes, will be appreciated for salad purposes early next spring. The tuberous chervil is similar in growth and equal in flavor to parsley and grown in the same manner. Sow the seed in late August. They will remain dormant until spring. The tubers have somewhat the flavor of sweet potatoes.

Growing in a cold frame is an easy method of securing home grown vegetables in late fall. Lettuce, spinach, radish and many other things may be grown in them. Make a cold frame if you have not one.

AMONG THE FRUITS

This is the month for budding fruit trees. Peach trees are the easiest to bud, but the operation may be performed successfully also on apples and other fruits.

Keep the ground stirred between the small fruit bushes. Cut all unnecessary suckers of raspberries and blackberries. Pinch back raspberry bushes that are growing too freely in order to make them branch.

For immediate use, leave tree fruits until well ripened before picking. The best flavor will thus be secured.

THE FLOWER GARDEN

To secure the most bloom from all kinds of flowers, keep them well picked or cut before they commence to fade. If seed pods have formed nip them off unless it is desired to save seeds.

Pansies may be grown from seed. English daisies may be grown similarly. Old pansy plants may be taken during August and renewed by cutting off the side shoots and placing these in a rather sandy soil in a shady place. Keep well watered and they will soon make vigorous plants to put in winter quarters ready for next spring.

Dahlias are heavy feeders. Give them plenty of fertilizer while the buds are swelling.

If weather conditions are favorable, some annuals will flower if sown now, such as calendula, calliopsis, sweet alyssum, candytuft, larkspur, marigold, mignonette, eschscholtzia, gypsophila, balsam, nasturtium and Shirley poppy. Fairly good results may be expected also from scarlet runner and convolvulus for climbers.

Seeds of hollyhocks, delphinium, aquilegia, campanula, coreopsis, gaillardia, papaver and some other herbaceous perennials may be planted this month and transplanted to the border late this fall or early next spring.

Plant lily bulbs for next summer. Hardy lilies and lily-of-the-valley may be transplanted late in the month. If gladioli are apt to be broken by wind storms tie them to stakes. All plants that are liable to injury should be treated similarly.

THE LAWN

If you intend to mulch the lawn this fall prepare the material now by securing equal parts of good clean soil and well-rotted stable manure. Mix these together and turn occasionally until October when it will be ready for use.

Apply water to lawns at night or in the early morning, giving a good soaking. Cut the grass about once a week, with longer intervals during hot weather.

Roses may be budded this month. By this means, undesirable varieties may be changed to desirable ones in a short time.

FLOWERS IN-DOORS

Many plants that have been enjoying a period of rest will have to be re-potted. Read the excellent article that tells how to do it, on page 169 of this issue.

To have freesias for Christmas, start them in August. For directions refer to page 150, July issue. Bermuda lilies for Christmas also must be planted early this month. The same should be done with Roman hyacinths and paper-white narcissi.

In all these operations, do the work as well as you can. If convenient, take snapshots of the various steps that are taken to produce the desired results and send them for publication in THE CANADIAN HORTICULTURIST.

Preparing for the Winter Window Garden

Wm. Hunt, Ontario Agricultural College, Guelph

THE month of August is a comparatively leisure month with the plant and flower lover. The lawn, vegetable and flower gardens will not require as close attention as during the growing

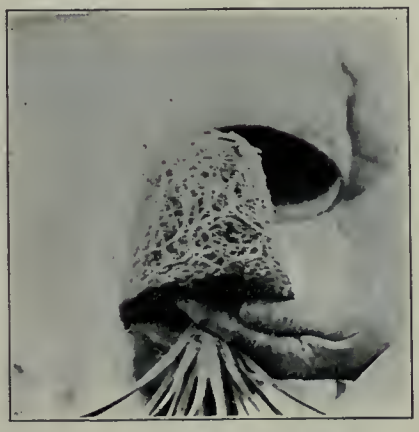
How to Grasp Pot to Remove Plant

months of spring and early summer, thus giving a little more time to attend to the potting of plants from the house and window that have been enjoying a comparative period of rest; or possibly in some cases plants that have been started specially for the decoration of window or greenhouse for the coming winter and spring months. Plants such as palms, aspidistras, different varieties of decorative asparagus, dracænas (cordylines), rubber plants, Boston and lace ferns, anthericums and similar decorative plants that have been enjoying a season of partial rest in some shady out-of-door nook will, in all probabilility, require repotting to give them fresh life and vigor for the coming winter season. Old plants of geraniums in pots and winter flowering begonias such as *Begonia incarnata* (Christmas pink begonia), B. Paul Bruant, *B. Argentea guttata*, *B. manicata* and *B. manicata aurea* (a conspicuous variety of this thick fleshly-leaved type of begonia and very enduring as a window plant) are some of the most popular window and house plants that will need repotting at this season of the year. Callas also should be repotted as early in August as possible if they require it, to secure early flowers. Chrysanthemum and salvia plants, also coleus, iresine (achyranthes), and ageratums that have been planted out in the border, can also be taken up and potted for stock or for decorative purposes, towards the end of the month.

The tendency on the part of the amateur plant grower, as a rule, is to overpot plants, which means putting them into a larger pot than is necessary. Overpotting plants, especially for winter decorative plants, should be avoided. The plants not only require more space, and the pot also being out of proportion to the size of the plant, but oftentimes the soil becomes soddened and sour from the large amount of water needed to keep the soil moist before root action and growth commences after re-potting. Soil for repotting at this season should be carefully prepared, and should be of a friable, open nature. Good drainage is another important factor towards success.

HOW TO PREPARE THE SOIL

Good fresh loamy potting soil from a compost heap of three parts sod and one part cow manure or well rotted barn manure, that has become well decomposed, is the best basis for all potting soils. One part of clean fine gritty sand and one part of leaf mould mixed with seven or eight parts of the loamy soil, will make an ideal soil for almost all of the plants mentioned. For potting chrysanthemums and geraniums the leaf soil (or black soil from the bush) may be omitted. The soil should be put through a three-quar-



This Plant Requires Re-potting

ter inch sieve and all dead pieces of wood and stones removed. The fibry part of the soil, unless too coarse, should be left in the soil.

HOW TO RE-POT PLANTS

First of all, see that the soil around the roots of the plant to be re-potted is well moistened but not too wet and soddened. Then knock the plant from the pot it is in so as to examine the roots, to see if it requires re-potting. To do this successfully, invert the plant and pot, at the same time placing the fingers of one hand across the surface of the soil, so that the plant cannot fall and be injured. Grasp the bottom of the inverted pot firmly with the other hand, and knock the edge of the rim of the top of the pot on the solid edge of a table or bench. If the plant does not at once loosen itself from the pot, turn the pot partially around and knock it in another place a few times until it becomes loosened. If on removal the pot is found to be well filled with roots so as to have exhausted the soil, it should be repotted. If it has not done so, the pot can be carefully slipped on over the ball of earth again, the plant reverted to its natural position and settled firmly in the pot by striking the bottom of the pot on the bench or table. It should then be watered at once. An examination made in this way will not hurt the plant if the soil and roots are not disturbed very much.

If the plant requires re-potting, first of all remove the old pieces of drainage at the base of the roots. Then scrape off the top surface of the ball of earth about a quarter of an inch in depth, as well as trimming in the top edge of the ball of earth just a little. In some cases, too, a little of the soil around the ball of earth may be picked out carefully with a pointed label or piece of stick or a skewer, or the ball of earth may sometimes be pounded with the hand, or on the bench, so as to loosen up the network of roots in cases where the roots have become very dense and matted, the idea being to remove all the old stale earth possible without disturbing the roots too much. All dead and decayed leaves or growth should also be removed. The plant can now be laid on its side carefully on the potting table or bench. Then select a clean plain pot one or two sizes larger than the original—one size larger will do if the soil has been trimmed down much as described—but usually a pot two sizes larger should be used. Now place a concave or hollow piece of broken flower pot over the hole at bottom of pot inside hollow side down sufficiently large to well cover the hole, place a few more pieces also around this in the same way, so that the bottom of the pot inside is well covered. An inch deep of drainage material

Ready for Re-potting
The Roots Have Been Loosened and a Small Portion of Soil Removed

is not too much to ensure good drainage in large seven- or eight-inch pots. Coal cinders, coarse gravel or lump charcoal can also be used for drainage material. Over this material a thin layer of the fibry

part of the soil may be laid, if practicable. When the drainage is fixed properly, put in a layer of soil about half an inch deep. On this a little well-rotted barn yard manure or dry cow or sheep manure may be placed, or a sprinkling of bone meal. Fill in a little more soil on this, then place the plant in the pot, see that the base of the stem or stems of plant are in the centre of the pot, and the surface of the ball of earth on the plant about an inch below the top of the pot, when a large sized pot is used. A little less than an inch below will suffice for five- or six-inch pots, the diameter across the centre of the pot gives the size in inches. When the plant is properly in its place, fill in some of the prepared soil about an inch in depth all around the ball of earth. Then get a thin piece of wood of the thickness required and about a foot in length—a piece of shingle one and one-half inches wide will do—with this pack the soil fairly firm around the ball of earth. Continue the filling in and packing until the

Plant in Position Ready for Filling in Soil

surface of the soil is about half or three-quarters of an inch below the top of the pot and just covering the surface of the ball of earth slightly. Then lift the pot about an inch from the bench with both hands, and give the bottom of the pot a slight bump on the bench to settle the soil down, level and losen slightly the surface of the soil.

The piece of wood mentioned is always in evidence on potting benches where large plants are handled by expert professional plantsmen, and is called a "potting stick", several sized sticks usually being kept on hand. The use of this potting-stick prevents any open spaces being left around the roots of the plants, the latter being an undesirable feature for the well-being of the plant re-potted. Chrysanthemums especially should have the soil packed firmly around the roots when being potted or re-potted.

WATERING

Water the plants re-potted well once, so that the water runs out from the bottom of the pot. Then avoid too frequent and copious waterings until root action and top growth has started. This is an important point as oftentimes, if the plants wilt or wither a little, the over-anxious plant-lover gives more and more water until the soil is thoroughly soddened, a condition that retards root action and growth, and injures the plant and may possibly have fatal results. Keep the soil moist but not soddened, for newly-potted plants especially.

Give the plants a sprinkling or spraying overhead once or twice a day with clean water, especially if the weather is hot, and place them in a partially shaded, sheltered place not exposed to sweeping winds, for a week or so. This is far preferable to soaking the roots of the plants all the time with water at a time when root action has been checked and the plant is not in a condition to absorb or take up much water from the roots. Good potting soil, good drainage, soil packed moderately firm, partial shade, and not too much water are the main points in successful re-potting..

RE-POTTING CALLAS

These plants should at this season of the year be in a dormant or semi-dormant state after their summer resting period. Unless the growth has well started all of the soil can be removed by knocking them out of the pot and removing the old soil altogether. The fleshy tuberous like roots should be potted in well drained pots in good rich potting soil. Keep the soil moist, not soddened, until several leaves have developed when they can be watered more freely. Later on in the winter some liquid fertilizer can be given them. By using a moderate sized flower pot for callas and giving them some fertilizer, better flowering results are attained than

Using Potting Stick for Packing Soil Around the Roots

by using too large a pot for them. Shade the plants from hot sun at all times.

TOP-DRESSING PLANTS

Plants that do not require re-potting can be top-dressed to advantage. Remove about an inch of the old soil and fill in with a compost made of half potting soil and half well rotted barnyard manure or dry cow manure or bone meal. This plan often helps the plants materially when they do not actually require re-potting.

When following the foregoing instructions, photograph each step if convenient and send prints for publication.

Park Lands that Slope in Graceful Undulations to a Pond Surrounded by Willows

Mount Allison College, Sackville, N.B., Crowns the Eminence. Photo by The Pridham Studios. Reverse the Illustration and Note the Effect.

Some Aster Troubles

C. M. Bezzo, Berlin, Ontario

THE aster, owing largely to its high breeding, seems to have an unusual number of troubles. Time and space prevent us from entering into details regarding all of them. Wireworms, white grubs and cutworms are the larvæ of various kinds of bugs or beetles, and are among the worst enemies of the flower garden. No means has yet been found of poisoning them and the only remedy seems to be the thorough and frequent tillage of the ground. The cutworm may be destroyed by the use of poisoned bran.

The "aster bug" is a name given in different localities to the blister-beetle, red-headed flea-beetle and garnished plant bug or "brown-fly." These may be destroyed by the use of insecticides. Paris green in the proportion of one ounce to eight gallons of water and used as for potatoes, is very effective. If a spray is used, arsenate of lead is preferable to Paris green. Mix one ounce of arsenate of lead paste in one gallon of water. Hellebore, diluted with five parts of ashes or air-slaked lime may be used dry with a bellows or sifter. If used as a spray, mix one ounce to three gallons of water.

Root lice cause the plants to have a wilted, sickly appearance. An examination of the roots will reveal the presence of hundreds of bluish lice. These may be destroyed by freshly made tobacco water. Steep one pound of stems of tobacco in two gallons of water and when cool pour about the roots of affected plants. Tobacco dust worked into the earth around the roots is also very effective. But better than all the remedies is a preventive. A good coat of hardwood ashes dug into the ground early in the spring will insure against root lice, but it must be put on early in order that the lye may be extracted before planting out time or it will burn the plants.

Stem rot is a fungous disease that enters the outer bark of the plant and frequently has its inception in the seed bed, although not manifesting itself until the plant is ready to bloom when it is found wilted and dying. The preventive is frequent stirring and drying of the surface soil about the plant at all stages of its growth, good drainage and the avoidance of low, damp and sour soil. Flowers of sulphur, dusted freely about the base of the stems is considered by some to be a preventive.

The yellow disease of the aster, the cause of which is still in doubt, is characterized by a yellowish, bleached appearance of the affected plant. If the plant blooms, the flower is of the same color as the leaves. Sometimes one side of a branch will be normal and the other diseased, the same effect being noticeable in the flower at the end. There is no evidence that the disease is contagious among plants; but as this point is still in doubt, and as there is no known remedy, we would advise the removal and destruction of all plants affected with the yellows.

Clematis Paniculata

J. McPherson Ross, Toronto

All varieties of clematis are desirable for planting as climbing plants, but the *Clematis paniculata* is particularly so. Wherever grown, it is exceedingly popular and gives every satisfaction from its hardiness and freedom of growth. In good situations it will easily grow from fifteen to twenty-five feet in a season. Its bright green glossy foliage is exempt from insects, while its flowers coming in late summer when other flowers have passed is a valuable characteristic. The flowers are small, star-like and fragrant but larger and whiter than the *Clematis Virginiana*, which it resembles in many other respects.

That it is just the plant for growing on trellises, verandahs and porches goes without saying, or for any place where a climbing plant is required. It makes a charming lawn plant when tied up to a stake and treated in the bush form. It should be cut back to the ground each spring. In many ways it may be termed a valuable climbing perennial plant, hardy as an oak, while its magnolia fragrance makes it more attractive as a plant for verandahs.

Propagating Peonies

Rev. Andrew B. Baird, Winnipeg

Peonies may be propagated by budding or by division of the roots. The former method involves some skill and trouble but anybody can multiply his plants by dividing the roots. All that is necessary is to see that each new root has one or more eyes from which the stems of the new plants grow. Plants differ greatly in the rapidity with which the roots multiply; some varieties will furnish half a dozen roots if taken up after two years, but most kinds increase more slowly.

New varieties are originated from seeds. The new plant does not come true to the parent. In most cases it is single, or otherwise inferior, but now and then one finds a gem.

Photographs of attractive entrances to home grounds, orchards or gardens are wanted for publication in THE CANADIAN HORTICULTURIST. Whether or not the entrance or gateway is made of stone, brick or wood, covered with vines or other plants, or not planted, it will be equally interesting and acceptable.

Clematis paniculata
Cut kindly loaned by Canadian Nursery Co., Montreal.

Let us hear oftener from amateur gardeners in Nova Scotia, New Brunswick and Prince Edward Island.

Small Home Gardens

By "Spectator"

AMATEUR gardeners are often disheartened when they see the beautiful results obtained in flower gardens under professional care and sometimes think, from photographs of others, that considerable expenditure and much space are required to produce the effects represented. Photographs are, of course, always taken from a favorable point of view, and it is the preparing of these points of view for the onlooker that is most requisite in the laying out of amateur gardens. These must, necessarily, be small, for amateurs can only devote a small portion of their time to cultivation and care. Results may be obtained not so much from the quantity and colorings of the shrubs and flowers, as from their being so placed as to give their best display.

A Beautiful Garden Spot, Well Arranged and Cared For

At "Dunain", residence of Mr. Barlow Cumberland, Port Hope, Ont.

As a first requirement in a small garden, the paths instead of being laid out in straight rectangular lines, should be laid out in easy curves. These are no harder to make or to maintain, but are more restful to the eye, give an enlarged idea of distance and, by their projecting bends, enable the flowers to be better seen and fewer to be used. The plants show themselves in distant contrasts instead of in continuous close contact, to be seen only when one comes opposite to them along the straight pathways. Each outward curve and inward hollow lends itself to contrasts of coloring and foliage.

For a distant effect, an iron vase set upon a section of a tree trunk at a point where two paths meet, or in a circle of sward around which they bend will form a centre, permanent in character but capable of infinite variety. One year for its centre there may be the palm-like effect of a dracæna, another year a geranium or a fuchsia each combined with the fronds of lobelias, nasturtiums or other trailing plants—few flowers to be attended to but much grace to be obtained.

Small groups of flowers, geraniums, giant poppies or peonies and a few flowering shrubs alternating along the curves give adequate results without many plants or much weeding or watering.

Another interesting centre may be made by a Virginian creeper trained up a cedar pole with laths nailed together at the top like an open umbrella. A little trimming of the hanging branchlets gives waving lace-like results.

For a boundary at one side of the garden, nothing is more easy or more effective than a perennial, or ever-growing border of plants selected from the lists so often given of those which flower in successive months—in its first year, a hope; in its successive years, a glory; and one which, with very little attention to prevent the flowerings from getting too rank, takes care of itself.

If a background is needed, a line of farm wire fencing stretched on posts painted green and planted at intervals with Virginia creepers, will soon give a permanent hedge of close rich greens in the summer and carrying its autumn tints far into the close of the year.

The amateur gardener who will devote his or her first thoughts to the lay out rather than to the quantity and variety of plants, will be able to get in a small garden an effect pleasurable to the eye, producing wider effects and within the time and expenditure they can accord to its care. The home is made more of a home by a small garden about its living side.

Some Dahlia Pointers

C. M. Bezzo, Berlin, Ont.

Dahlias succeed much better when planted out in the open than in the shelter of a wall or building. If a perfect individual specimen plant is desired plant four feet apart. This allows plenty of room for a free circulation of air and sufficient space from which to draw sustenance. If put in rows they may be planted from two to three feet apart in the row.

Do not allow more than two shoots to grow up from the one root; pull all the others up or break them off as fast as they appear. Some growers leave only one stalk, and this they pinch back as soon as two or three set of leaves appear, thus making the plant branch out instead of growing tall. Stake the plants early. Where a robust growth is expected, inch and a quarter stakes should be used, tying the plant with raffia, strips of cotton or anything that will not cut the stalk.

If a plant is found wilting after all the cultural directions have been followed, examine the stalk for the stalk-borer. If you find the hole take a piece of wire and pull the worm out, or cut it out with a sharp knife. If the stalk is not much injured it will heal, otherwise there is nothing to be done but cut it off and burn it. A good plan would be to examine the plants occasionally for signs of the destroyer.

There is also an insect which blasts the buds before they open and they drop off by the dozen. Spray with soapsuds or sprinkle with pepper. In dry hot weather, if the plants are allowed to get dusty the red spider will make his appearance. Sprinkle the underside of the leaves with water from the hose or with soapsuds, and he will soon disappear.

Worms and Aphids

How can I destroy worms in the soil of house plants, and also aphids on the plants?—A.J.P., Brampton, Ont.

For the worms use lime water. Slake one pound of fresh lime and mix it with two gallons of water and allow it to settle. Two applications usually is sufficient. For the aphids, spray the plants or dip them in a solution of tobacco water.

Cabbages on Prince Edward Island

D. J. Stewart, Aitkin's Ferry

TO produce cabbage, like those illustrated, which weigh from twelve to twenty pounds, in the short space of time of three and one-half months, one must understand the needs of his crop, and supply those needs, and these are food, water and cultivation. For food, I use barnyard manure and lobster offal or fish waste with nitrate of soda and muriate of potash when necessary. While we cannot supply water, we can do much to preserve what we have by plowing down the manure and finishing off the field when the ground is damp, and afterwards keeping the surface fine by frequent cultivation.

Use a cultivator with finer teeth than those generally sold by dealers, as the object in cultivating is to kill weeds and stir the soil—not to open trenches for drain tile, as many cultivators do. A cultivator with five or seven teeth taken from a spring tooth harrow is the best I have ever used. When your rows are only thirty inches apart, you will have to use the hoe to remove weeds after the cabbage begin to head if you want clean land the following year. No definite number of times for cultivating or weeding can be stated as soils, weather and time must determine these for each.

The three most dreaded enemies of cabbage in the province are club-root, root maggot and green worm. The first of these is the only one that gives me any worry and the only way to avoid it (*avoid*, not *cure*, is the word), is not to plant cabbage on land that has had cabbage or any of that family for at least five years, and not use manure from cattle that have been fed club-rooted turnips. Examine your plants before you set them out and if they show any signs of maggot, wash the roots thoroughly. I have set out badly infested plants after washing without losing five per cent. For green worm, spray with Paris green and water, one pound to about eighty gallons, as soon as the worm appears and if you keep them down until the cabbage begin to head, you will not have much trouble then. Much depends on the number of cabbage grown. A row or two in a turnip field will have as many worms as an acre and, of course, will have a good chance of being ruined. I have tried salt, hellebore, and other things, and found them useless.

Under Good Management Cabbages will Grow to Perfection on Prince Edward Island

Mulching the Garden

A. V. Main, Almonte, Ontario

THE mulching of vegetable crops in summer is a method of very good manuring that is not practised to any extent. The term "mulching", is simply a top dressing of manure, straw, lawn mowings or a like material to act as a food and manurial agent to the plants treated. We can not discuss the question of its merits, for it is decidedly a great assistance for good crops, and that is what we all want,—bumper crops.

What are the chief benefits of mulching? Firstly, it prevents the rapid evaporation after rain, and conserves the moisture to the plants' benefit; secondly, keeps heavy clay or clammy soil from getting parched, dry and cracked; thirdly, when rain arrives, the nutriment from the manure is washed down to the roots—plants assimilate manurial feeding and grow rapidly during a rain and immediately after it. We take half-decayed manure or the material from the hot-beds, that have done their work in spring, can now be utilized in another form. I have not found straw or lawn mowings to be worthy of the term, "beneficial mulching." Straw is void of plant food, is not suitable for a rooting substance, and is a cover for mice, and is unsightly in the garden.

The manure can be spread out thinly and evenly and cultivation need not halt either, for the manure can glide through the cultivator. In regard to cultivators, I recommend the "Buco" for small gardens, and even gardens that run up to several acres. It is light and very effective to run between rows of onions, beets, carrots and parsnips, in fact all crops in rows of a foot or more apart. It is quite an advantage over a hoe or other heavy cultivators. With the "Bucco" you loosen the ground and leave no foot marks on the cultivated section.

The period for the application of mulching is about the first of July, when the crops are generally well advanced, all thinned out and weeded, and have been well cultivated. The plants at this date are in good shape for mulching. Vegetables that respond to this form of manuring in our garden are tomatoes, grown in single-stake fashion, onions, cucumbers, melons, beans, beets, cauliflower and particularly broad beans that suffer so much from drought. It is advantageous to all vegetables; however, potatoes, corn, cabbage and squash are not deserving of it, for their own foliage soon covers the space allowed them. A couple of inches is a sufficient covering. With successive dry summers and the grower handicapped for a want of water supply and probably a stiff soil in the garden, mulching is a good substitute to sustain the plants.

Soil for Palms

What kind of soil is best for palms?—W. M., Oshawa, Ont.

Palms require a moist soil with ample drainage material at the bottom of the pot. Water standing at the roots is injurious. The best soil for most palms is one that is composed of well-rotted sod, leaf-mold and a little sand.

If you are trying any novelties in vegetables, keep a record of their growth and behaviour and send a few notes for publication in THE CANADIAN HORTICULTURIST.

The Canadian Horticulturist

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January, 1908	7,650	January, 1909	9,456
February, 1908	7,824	February, 1909	9,310
March, 1908	8,056	March, 1909	9,405
April, 1908	8,250	April, 1909	9,482
May, 1908	8,573	May, 1909	9,172
June, 1908	8,840	June, 1909	8,891
July, 1908	9,015	July, 1909	8,447
August, 1908	9,070		
September, 1908	9,121		
October, 1908	9,215		
November, 1908	9,323		
December, 1908	9,400		
Total for the year	104,337		

Average each issue in 1907, 6,627
Average each issue in 1908, 8,695
(Increased circulation in one year 2,068)

Sworn detailed statements will be mailed upon application.

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THE CANADIAN HORTICULTURIST,
PETERBORO, ONTARIO.

EDITORIAL

DARWIN

The recent celebration of the centenary of the birthday of Charles Darwin and of the jubilee of the publication of the "Origin of Species" acknowledged on behalf of mankind the debt which is owed to the great naturalist. Men from all parts of the world assembled at the University of Cambridge to honor the memory of the man who most firmly established the science of biology, the study of living things.

To Darwin, horticulture owes much. His was the mind that told us the story of evolution, that gave us a rational theory of plant distribution, that increased our knowledge of the means of seed dispersion, that showed that classification is founded on descent, that pointed out that "flowers are adapted to be crossed, at least occasionally, by pollen from a distinct plant" and that "nature abhors self-fortilization," and that gave innumerable other facts and theories that form the basis of present-day horticultural science. Some of these have been modified and enlarged by later study but Darwin laid the corner-stone and constructed most of what is known. As we are prone to accept and forget, it is well that the name of Darwin has received in this celebration the recognition and the respect that is its due.

PROGRESS IN NEW BRUNSWICK

The great extent of the lumbering interests in the province of New Brunswick, has resulted in retarding the progress of agriculture to such an extent that the impression has gone abroad that conditions there are not favorable to farming and, in particular, to fruit growing. Even among the people of New Brunswick this feeling has prevailed and the many abandoned farms which one sees in a day's drive in the country certainly would not correct the error. Attention is now being drawn, however, to the advantages of that province for mixed farming, and the next decade will show a marked advance in that industry. It is still very much the habit, however, to regard the sister province of Nova Scotia as the source of supply for apples, while for plums and more tender fruit the fruit growing sections of Ontario are depended upon.

This must all be changed, and will be so soon as the people of New Brunswick get their eyes open to the fact that in many varieties of fruit they can equal, if not excel, the other provinces. Already large and successful orchards exist along the valley of the St. John river and in some other sections, and the illustration orchards established by the government of the province in nearly every county will soon arrive at a stage where they will demonstrate that an apple orchard properly cared for will prove a profitable investment.

Very few farms at present are devoid of apple trees. In some cases, they are simply wild trees that have been set in rows and left to bear such fruit as they will. In other cases, unscrupulous agents have forced upon the farmer such trees as they could and these have been set in the grass field where the grass is cut every year and the trees left to do what they can on such sustenance as is left in the soil. As the trees in most cases made no proper growth, they were entirely neglected and apple growing pronounced a failure. In cases where proper care has been given this fruit, however, it has proved a wonderful success. Many varieties of apples can be raised in the province to as high state of perfection as anywhere in Canada.

Elsewhere in this issue a number of articles tell what can be done in the St. John valley and in other parts of the province. Note the following letter that was received from Mr. C. N. Vroom, of St. Stephen: "In the valley of the St. Croix River, we can raise Red Astrachans which, so far as I can learn, cannot be excelled or perhaps equalled on the continent, and in their perfection they are a most attractive and saleable apple. Such varieties as William's Red, Wealthy, Gravenstein, Duchess, Fameuse, Bishop Pippin (Yellow Bellflower), R. I. Greening, N. W. Greening, Golden Russet and many others will reach a high state of perfection here and can be successfully and profitably grown. Of course, in setting an orchard the choice of varieties is all important. It is better to grow a good Astrachan than a Baldwin that is far inferior to those grown in Massachussets, or it is better to grow a Wealthy than a Ben Davis whose solo merit is that it will keep for a year or two. In my boyhood days, plums grew here in abundance. The advent of the black knot killed out the old trees and discouraged re-planting. In planting an orchard of a few acres, I am setting plums as a filler one way in the rows and intend to keep up a continuous planting of this fruit. We have an excellent market for fruit and an intelligent setting and care of orchards will prove a profitable investment."

To hasten the development of fruit growing and other horticultural pursuits, the report of the New Brunswick Agricultural Commission recommends the appointment of a provincial horticulturist. Such a man could promote general horticultural work, teach practical horticulture at fruit meetings short courses and so forth, oversee the illustration orchards, plan and conduct experiments and encourage fruit growing, truck farming and ornamental gardening in many other ways. This suggestion should receive the favorable consideration of the provincial government. The opportunities for horticultural development are many. The government, the provincial fruit growers' association and the individual should make the future more productive of accomplishment than the past.

PRINCE EDWARD ISLAND

In various issues of THE CANADIAN HORTICULTURIST reference has been made to the splendid outlook for fruit growing on Prince Edward Island. In apples, autumn and early winter varieties are the most profitable producers. Mr. Alex. McNeil, Chief of the Fruit Division, Ottawa, has said that the finest box of apples that he ever saw grown and packed in Canada was a box of Baxters grown in Prince Edward Island and exhibited at the annual meeting of the provincial association in 1905. The early and midseason varieties of pears do well. The European class of plums grows successfully. Cherries of the Kentish type and some others yield good crops. Small fruits thrive luxuriantly in all parts of the Island. Some varieties of all these fruits are grown to perfection. There is no question about the possibilities. It remains for the Islanders to take full advantage of them.

The provincial fruit growers' association is younger than that of Nova Scotia, but it is fully alive to the demands for intelligent practice in the industry. It has done good work in disseminating knowledge about what to grow and how to grow it. There is opportunity for further effort in this direction. The majority of farmers are indifferent to the needs of the orchard. The "model" orchards that are being managed under the

provincial government will do much to demonstrate the value of proper orchard practice and to show what varieties of fruit to grow in the various districts. There should be an orchard on every farm in the province and it should be given proper care. Prince Edward Island can produce enough fruit for her home market and have a big surplus for export.

As the Niagara District Horticultural Exhibition will be held during the time that the American Pomological Society meets in St. Catharines, the growers of the district should do all in their power to make it a great success. The management invites exhibits of fruits, flowers and vegetables from every person. The exhibition should receive the combined support of the growers of the Niagara peninsula.

PUBLISHERS' DESK

Our cover illustration this month shows a part of one of the "model orchards" in Prince Edward Island. It is owned by Mr. John Annear, Lower Montague. Photographs of other model orchards in the maritime provinces will be welcomed for publication. To make their appearance in these columns of greatest value, send us also a short description of the scene.

In this issue are published many articles that are of special interest to our friends in New Brunswick and Prince Edward Island. Last month Nova Scotia received particular attention. We want our readers in the maritime provinces to feel that THE CANADIAN HORTICULTURIST is published in their interests as much as in the interests of any other section of our great Dominion. Every issue contains practical and up-to-date information on orchard and garden management. Except occasionally, no one province is favored at the expense of the others. We have contributors and special correspondents in all parts of the Dominion, and we want more. Every reader is invited to contribute articles and letters for publication. Tell your experiences in orcharding, growing vegetables, flower gardening, managing lawns, shrubs or anything else that has to do with horticulture. Send photographs if you have them.

A number of special articles will be published in our September issue. They will be of much value and general interest. An article on "The Better Judging of Fruit," by Mr. Chas. Webster of Kelowna, B.C., will tell how the exhibits were judged at the Spokane Apple Show last December; many suggestions for adoption at our Canadian fairs and exhibitions will be given. "The Pre-Cooling of Fruit for Shipment," will be discussed by Mr. J. A. Ruddick, Cold Storage Commissioner, Ottawa. "The Fameuse Apple" will be dealt with by Mr. R. W. Shepherd, of Montreal. Mr. G. H. Carpenter, of Fruitland, Ont., will give some pointers on "Marketing Early Grapes." Diagrams and a description of improvements being made in Queen's Park, Barrie, Ont., will be an important feature; every person interested in the making and management of pleasure grounds and in the beautification of our cities, towns and villages should read this article. These are a few of many valuable articles that will appear. It will be a strong number and should not be missed.

Apple Growing on Prince Edward Island

Alex. McNeill, Chief, Fruit Division, Ottawa

IN the series of orchard meetings which were held under the auspices of the Prince Edward Island Department of Agriculture, it was particularly noticeable that an increased interest and enthusiasm had lately been developed in the matter of orchard planting. There was a very large attendance at the first meeting in Mr. P. N. Pate's orchard at O'Leary. Of these, many were about to plant orchards for the first time and were very anxious for information with reference to varieties and methods of culture.

The Springfield meeting was held at one of the model orchards, on the farm of Mr. D. N. McKay, where there was a splendid object lesson in the matter of varieties. The conditions on the island are such that only the hardier trees can be depended upon. In the earlier planting of the model orchard, many varieties were included about the hardiness of which there was a doubt. Those that were too tender for the situation were beginning to show the effects of the severe winters and not a few had died outright; but the varieties which have been recommended for Prince Edward Island by the Fruit Growers' Association were all doing well, and there was a splendid promise of a strong vigorous growth that would develop good bearing qualities.

In the neighborhood of Hazelbrook, about six miles from Charlottetown, orcharding is by no means an experiment. There are several fine orchards in the neighborhood, though all have made the mistake of planting some tender varieties, and few have yet learned to appreciate the value of clean culture.

Perhaps the best kept orchard on the Island was that of Mr. John Annear at Lower Montague. The remnant of the old orchard still growing in sod was there for comparision with the new orchards of the most approved varieties and with the most up-to-date methods of culture. The newer orchard is not yet in full bearing and, therefore, it cannot be said that the evidence is forthcoming in actual production to prove the value of modern methods. Nevertheless, the vigorous growth of trees gives ample promise that the fruit will respond to the generous treatment given them.

At Rollo Bay, the Reverend Father Walker is setting a splendid example by planting an orchard, which may be called a model orchard, on his own grounds. In order to have the very best, he has removed several large trees, has broken up the sod throughout the orchard, and is planting the recommended varieties with more care than is usually bestowed upon apple trees.

MOST ORCHARDS ARE NEGLECTED

That the orchards of the Island are neglected is apparent to anyone who is able to make a comparison with the orchards of the Annapolis valley. It is the rule to find the Prince Edward Island orchards all in sod and, in most cases, the crop of hay is removed from the orchard. Although the double crop, the crop of hay and the crop of trees, is produced upon the soil, no corresponding fertilizers are used. Indeed, it would seem as if it were expected that the ground required rather less fertilization when in orchard and yielding two crops than it would need without the trees and producing a single crop.

GROWERS ARE ORGANIZING

Notwithstanding this want of culture, the trees bear some fruit and sufficient to encourage the owners to plant more, were it not for the hopeless feeling that they have with reference to markets. Almost the first objection that is made to orcharding is that they could not sell the fruit even if they grew it. To meet this objection the provincial fruit growers' association has been instrumental in forming a co-operative association embracing the whole island. The co-operative association has received the patronage of the provincial government, and is organized to meet the needs of the various centers at which fruit can be collected.

Professor Ross, Secretary for Agriculture, is energetically promoting the new association, assisted by a board of managers. They have made arrangements for supplying the patrons with barrels and boxes at the lowest possible cost. They are also considering plans for assembling the fruit with the least possible injury. Their present intention with reference to sales is to develop the home market to the fullest extent. They think it quite possible to supply the greater

Wealthy Apple Tree Five Years Planted

Produced two and one half bushels of No. 1 apples last autumn. In orchard of Mr. John Annear, Lower Montague, P. E. I.

portion of the fruit that is now imported from other provinces. Should there be a surplus after this, they have made arrangements to have it handled at the next nearest market across the Northumberland Strait in the mining district of Nova Scotia.

Their transportation facilites for export are not the best at the present time, but this is in consequence of the lack of fruit. If the quantity were greater there would be no difficulty in procuring facilities quite equal to those of many parts of the other provinces.

The co-operative association will also do a good work in procuring the best grade of nursery stock. Undoubtedly, the effect of procuring nursery stock through a single organization of this kind, composed of the best growers and embracing all the experience that there is on the Island, will be to confine the varieties to a comparatively small number. The varieties that can be confidently recommended for the Island are the Duchess, the Wealthy, Alexander, Wolf River, Baxter, Pewaukee and Ben Davis. The Inkerman appears to be growing in favor, but as there are not yet any large plantations of it, the people have not had an opportunity of seeing it tested in all the conditions of the Island. The McIntosh Red, too, is another apple which many think

is a coming apple for the Island. It is certainly quite hardy, and will always command a ready sale. It is not desirable to extend the varieties much beyond these. Many other varieties can be grown upon the Island, but to grow them would only lessen the value of the whole. What is wanted is few varieties and a large quantity of each of these.

SHOULD CULTIVATE MORE.

After having the proper varieties, perhaps the most needful reform is in the matter of cultivation. The orchardist must learn that trees require exactly the same attention as any other plant. As well might they hope to get a good crop of grain without cultivating the soil as a crop of apples without culture. The instructions for the cultivation of the orchard might be summarized by saying that whatever culture is needed to produce a good yield of corn is needed for the trees. A warning must be put in here that along with this clean culture in the early part of the season, should go cover crops, sown during the month of July or not later than the first of August.

USE COVER CROPS.

Almost any crop that will germinate easily will make a good cover crop, but by preference something should be sown that will die down during the winter. Common oats and vetches, half and half, make a very good cover crop, but the seed is expensive and it is perennial. Clover may be used but it is difficult to get a catch so late in the season as August that will make any quantity of material before the end of the growing season. If clover is allowed to grow in the orchard, it should be plowed down as early in the spring as possible. No doubt clover is a detriment to an orchard if allowed to grow during the months of May and June.

SPRAYING AND PRUNING

The matter of spraying and pruning will very soon follow along the right lines. The sentiment is in favor of both operations, and that they are not done is probably largely the result of carelessness, not of ignorance. When the orchards are larger, and more dependence is placed upon the orchard as a source of revenue, pruning and spraying will undoubtedly occupy a more prominent place than they do now in orchard cultivation.

On the whole, the outlook for orcharding in Prince Edward Island has brightened materially the last two or three years, and it would not be surprising to find that the farmers will in the near future look upon their orchards as a very important source of revenue. A few orchardists now are making as much gross income from 10 acres as their neighbors make from a hundred acre farm.

For Apple Growers.—The apple growers of Canada will welcome the appearance of a work entitled, "The Canadian Apple Growers' Guide," that is now in the hands of the publisher, William Briggs, Toronto. Its author is Linus Woolverton, M.A., who for many years was editor of THE CANADIAN HORTICULTURIST, and secretary of the Ontario Fruit Growers' Association. The work covers the whole subject, from the planting of the tree to the harvesting and selling of the fruit; and contains full particulars about pruning, spraying, grading and packing, written in such a clear and concise manner that even the novice should be able to make a success of apple-growing. The book will be reviewed at length in these columns as soon as published.

Items of interest are wanted for publication.

FRUIT CROP SITUATION

Present prospects point to only a medium crop of apples in Canada. The outlook is not as bright as was reported last month. In Nova Scotia, the crop is much below that of last year. New Brunswick and Prince Edward Island will not have enough for home markets. Quebec expects a crop below medium. In Ontario, conditions are variable. Georgian Bay expects nearly a full crop; Lake Erie and Niagara district below medium; Lake Ontario, medium. In British Columbia, conditions are poor near the coast and fair in inland valleys. It is noticeable that the apple aphis is more than usually injurious this year, being present in all districts from coast to coast. The situation in the various districts, together with reports on other fruits, are given by correspondents of THE CANADIAN HORTICULTURIST as follows:

QUEEN'S CO., N.S.

Milton.—Fruit set well but dropped badly as rains have been few and caterpillars are doing great damage. Only two or three are spraying. I have had little trouble as I pick the eggs off and burn in winter. The aphis is a great scourge, the foliage of plum trees especially being eaten full of holes and dropping. Ends of twigs are curled up and dead.—G. H. H.

DIGBY CO., N.S.

Bear River.—Fruit set good but is falling now owing to dry weather. Green aphis is abundant. Present conditions would indicate short crops of fruit.—B.C.C.

ANNAPOLIS CO., N.S.

Round Hill.—The present outlook for fruit is good. Apples set well and are developing well. Fruit is clean, almost wholly free from black spot. The canker worm did serious damage in some sections and seemed difficult to control by spraying. It is early yet to predict outlook; would say from fair to full crop of clean fruit.—J.H. T.

Bridgetown.—The canker worm has been active in some of our orchards. The apple crop will not be above the average, but the fruit is clean and free from spot.—E. R.

KING'S CO., N.S.

Kentville.—The apple crop, as far as can be estimated now, will be only fair, not as much as last year, say 400,000 to 500,000 barrels. Plums are good, especially the Japan. Cherries are also good. Apples are remarkably free from black spot. Apple plum and cherry aphis are much more abundant than ever before. Canker worm is in marked evidence.—R. S. E.

HANTS CO., N.S.

Falmouth.—Fruit is not as heavy as last year. The quality of fruit is good, clear of spot at present. Some canker worm has done some harm here.—H.E.D.

COLCHESTER CO., N.S.

Truro.—Apples are fairly good. Plums and cherries did not set well and are light crop. Raspberres and blackberries, where not injured by winter killing of the buds, are setting fruit fine and promise well. Currant worm was very plentiful. Aphids have been very bad, worse than for years both on shrubs and trees and require constant care to keep them down.—J. C. B.

WESTMORELAND CO., N.B.

Shediac.—Apple crop not as promising as last month. A very dry June or a late frost caused a heavy drop of apples, most noticeable on Bens. The fruit is now developing well. Aphis is bad on both the bearing and young trees.—H.B.S.

QUEEN'S CO., N.B.

Lower Gagetown.—Apples in this locality will not be more than half an average crop, Bishop Pippins, Alexanders and Fameuse being a complete failure. Of plums and cherries, there will not be any at all. There was a green worm about an inch long that stripped the apple trees of their leaves and other trees also in some orchards.—G. Mac A.

Hibernia.—Apples are a medium crop. Pears are good in some orchards. Codling moth and aphis are most troublesome insects. Raspberries promise a good crop. Strawberries are abundant.—J.C.

SUNBURY CO., N.B.

Upper Sheffield.—Apple blossoms were hurt by frost and tent caterpillars did a lot of harm to foliage. Cherries and plums are a failure. Strawberries are plentiful. —I.W.S.

Oromocto.—Strawberry crop was good; cherries, medium; other small fruits filling well. Off year for apples and a light crop. Tent caterpillar was very destructive.—H.W.

CHARLOTTE CO., N.B.

St. Andrews.—Apples promise a good crop especially fall apples. Owing to the dry weather, a good deal of fruit is dropping off. Trees look healthy. Strawberries, currants, gooseberries and all small fruits are promising.—J. R.

PRINCE CO., P.E.I.

Bedeque.—Prospects are not as good as in June, but fruit is developing well. Insects are prevalent, especially aphis. Large fruit will be a medium crop. Small fruits are not up to the average.—C.N.B.

QUEEN'S CO., P.E.I.

Marshfield.—The fruit crop looks fine. The fruit has set well on the trees and is growing fine. There are few injurious insects and no blight of any account. Spys are going to be a full crop; Duchess, a full crop; Baldwins, medium; Alexanders and Russets, over medium crop. Plums are a medium crop and look well. Cherries are a full crop and the fruit is set well on the bushes.—W.J.S.

KING'S CO., P.E.I.

Aitkin's Ferry.—Summer and fall varieties of apples are a very full crop, while winter varieties are not so heavily laden. Plums and cherries are carrying about 25 per cent. above an average. Bush fruits are a fine crop. Strawberries are about 10 days later than usual but are a good crop. Aphis on trees is very prevalent.—D.J.S.

TWO MOUNTAINS CO., QUE.

La Trappe.—The apple crop is very good in our vicinity, but less than bloom indicated. Plums, cherries and small fruits are very scarce.—G.R.

ROUVILLE CO., QUE.

Abbotsford.—Apple crop will be below average. The codling moth and curculio are much in evidence and the June drop has been very heavy. Currants and gooseberries are a full crop. Plums are a light

(Continued on Page 182)

NOTES FROM THE PROVINCES

New Brunswick Fruit Growing

In many sections of New Brunswick, fruit growing is past its experimental stage as a visit to numerous orchards or an inspection of fruit exhibits at our various exhibitions will demonstrate. Nearly all the small fruits, many varieties of plums and pears, and all but a very few varieties of apples flourish in the province when care is given to their culture and growth. In the lower part of the St. John Valley the most progress has been made and there all the standard varieties of winter apples grown in Nova Scotia are produced with good success. Such varieties as American Baldwin, King, Spy, Ribston, Bishop Pippin (Yellow Bellflower), Golden Russet, especially if top grafted on native stocks, adapt themselves to the climatic conditions. The Gravenstein also does well top-grafted. The territory to which these remarks refer is known to extend from Oak Point to the Oromocto River, and to stretch back on either side of the River St. John an undetermined distance. Various places along the Belle Isle, Washademoek and Grand Lake shores, as also parts of Albert and Westmorland counties, grow good winter varieties.

All these districts as well as many others, especially the St. John River Valley from Oromocto to the Victoria county line, grow the best varieties of late autumn apples such as McIntosh Red, Wealthy, St. Lawrence, Wolf River, Alexander and Fameuse, and this district also has considerable winter fruit. In parts of Victoria county, in Madawaska and on exposed situations along the sea coast, apple growing has not proved successful, but with these exceptions all the best early fall varieties of apples can be grown throughout the province.

The "illustration orchards" might well be extended and more use made of them as object lessons in apple growing. Orchard meetings under the charge of an expert horticulturist have done good work in the past, and can be continued with great advantage.

Experts, competent to speak with authority, tell us that a larger area of first-class apple growing country exists in New Brunswick than is to be found in Nova Scotia. At present but little care and skill is given to the selection and planting of varieties suitable to the various localities, to the setting out and care of young trees or to the necessary care of bearing orchards. Marketing is done very badly, yet there are a number of orchardists who are setting an example and proving that apple growing is a very profitable business.

A great success of strawberry culture is being made by a number of growers, their berries having the highest reputation wherever sold from Sydney, Nova Scotia, to Montreal and Boston. Mention should also be made of the immense crops of blueberries that grow anywhere in the province where a fire has prepared the land for them. They are exported to the United States in large quantities. Wild raspberries in some sections also form an export crop. Cranberries grow on suitable bogs everywhere. At St. Martins, a variety of cranberry of high quality grows on the upland fields.

The employment of a good horticulturist who would devote his time to the development of fruit interests throughout the Province would be a most valuable and needed aid to the development of what can be made a great industry.—From Report of New Brunswick Agricultural Commission, March, 1909.

Fredericton

Editor, THE CANADIAN HORTICULTURIST: We have noticed in several issues of your paper a request for information regarding our doings in the maritime provinces. In a small town or city of some 7,000 we cannot be specialists in any one thing. We have to be both florists and general horticulturists, with a few acres of land, either owned or leased, near at hand, with greenhouses, hotbeds, sashes and so forth, as a means of producing early flowers and vegetables. During late fall we prepare for winter by marketing or storing the crop of potatoes, celery, cabbage, turnips and carrots. Some of these pay better if kept till spring if stored safely away. We have as the wise man said, "A time and season for everything under the sun." This is true in horticultural matters.

I will instance this by our leading fruit grower in this locality, Mr. J. C. Gilman, who has found that it would be to his great advantage to build a suitable cold storage for keeping several hundred barrels of apples. The consumers, as they have no suitable place for storing, prefer buying in small quantities and thus Mr. Gilman can supply at a few hours notice, a barrel or half a barrel of fruit in fall, winter or

One of our Apple Trees in Orchard of A. Rutherford Balcomo, B.C., in full bearing, planted only 3 years.

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Department of Agriculture, Experimental Farm of B.C.,
Messrs. Stone & Wellington, Agassiz, May 29th, 1906.
Toronto, Ontario.

Gentlemen:—Yours of the 21st to hand. I know that you will be pleased to learn that I have had splendid success with the scions I received from you. Your trade in the Kootenays should increase very rapidly, as your trees are good and being grown in a limestone soil are better constituted than those grown on this coast, where there is no lime in the soil. Yours faithfully,

(Signed) THOS. A. SHARPE

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spring. So it is with celery, cabbage and other roots. One must have, to do business to his own advantage, a suitable place for storing roots. In fall, the market is glutted with carrots, turnips, cabbage, celery, cauliflower and so forth. It is almost impossible to sell them then but if they were stored until April or March, they would sell readily at your own price; at that time, the people begin to crave for fresh vegetables.

I have led you to spring. Well, there is lettuce and radish which are always in demand for spring salads. Rhubarb is the same. There is money in them if you have the proper facilities to produce them. When the ground is ready, in addition to the hotbed stuff the very earliest piece of dry, well drained, sunny land should be selected for beets, carrots and onions. These should be got in as soon as the ground is dry enough, the land being cultivated in the fall, if possible. As soon as the seedlings are big enough, thin, cultivate and encourage them in every way possible to get the first bunches on the market as early as possible for "It's the early bird that gets the worm." Keep your supply equal to the demand for it will not last forever. Later, the other men will be trying to be first too. Make all you can while the demand lasts. When the market gets glutted stop. It is better to feed your produce to cattle if they will eat it than to waste your time and team trying to sell it at less than cost, such as cucumbers at 50 and 75 cents a barrel, and so on.

There is a time to sell and a time to cease selling. Another example of this. In May and June, 1908, we could not supply the demand for lettuce. In July, the people wanted something different, perhaps strawberries. The same may be said of cucumbers. In June and July the demand was good but in August there was a glut, I said, "Don't lower your dignity by offering what people don't want." About the end of July and the first of August, we offered nice, medium-sized cauliflowers. The demand was good. The grocers and hotels wanted them as fast as they matured and by the first or second week in September, our crop was sold and then our second crop was ready. But, alas, the demand was supplied. The time had come to cease selling.—J. Bebbington & Son, Fredericton, N.B.

Lunenburg County, N. S.

H. T. Herb, Bridgewater

Commercial orcharding is yet in its infancy in Lunenberg county, N.S. We raise fine apples but too few of them.

Clean cultivation is practised in only a few cases. Those who practise it can be counted on the fingers of one hand. Spraying is a little more common. Spray pumps have been purchased to use on potatoes and some use them on their orchards as well. The general idea is that it does not pay to waste time on the orchard. "What is the use? You cannot sell the apples anyway." are expressions frequently heard.

The model orchard planted here is doing well but the farmers say, "What is the good of it? There are more apples raised here now than we can sell." They smile when I tell them that the more apples we raise the better chance we will have to sell them.

"You have nursery stock to sell," they say. Yes, there are three nurseries of apple trees near here, as fine stock as can be grown, offered at from 10 cents to 15 cents a tree and cannot be sold. "No, I have too many trees set out now," the farmer says when asked to buy. One nurseryman near here burned 1500 trees last spring.

I planted 300 or 400 this spring, but I know of no one else near here who is planting an orchard. I have about 1400 set now. Some of them are commencing to bear. I shall demonstrate to others that orcharding pays. I think I can within five years.

The most of Lunenburg county is just as good a place to grow apples, I think, as the Annapolis Valley, except that it costs more to break the land as we have some stone. We are not nearly so liable to frosts, spring and fall, as the valley. The soil is richer and for that reason requires clean cultivation even more so than the Valley, as the grass grows ranker and stronger and takes more moisture from the soil that otherwise should go to the trees. Underdraining is more needed here than in the Valley but we grow a little better flavored apple and a better keeper.

What we need most is a few settlers to purchase some of the farms that are lying idle all around. Nine out of every ten are idle or nearly so. and can be bought cheap. We should wake the people up and show them the chances that they have here, which are second to none in this naturally favored Canada of ours.

Annapolis Valley, N. S.

Eunice Watts

Although the apple blossoms were exceptionally full, the fruits are not equal to the display of flowers, but the general impression through the valley is that the crop will be a good one. So far, the season has been very dry and unless the cultivator is kept going, crops will suffer. With some growers the pea crop is a failure, and the drouth has halved the strawberry yield; complaints of mis-shapen berries and nubbins are numerous.

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Mention The Canadian Horticulturist when writing.

attacking the nursery trees, but the old orchards also. We found that an application of Nico-soap had the desired effect, but they curl the leaves in such a manner that it is difficult to apply a spray to the under side of the leaves.

A small reddish-brown beetle, called *Galerucella cavicollis*, is for the first time in this district, attacking the wild and cultivated cherries, also peach trees by skeletonizing the leaves.

[NOTE.—Spraying with Paris green or arsenate of lead will control this insect.—Editor.]

Greenhouse cucumbers were being sold in July for three cents each. All out of door produce is backward. Strawberries dropped to 10 cents but began to rise again.

Tomatoes with good cultivation are doing well. Experiments in planting prove that plants from the same batch planted early, are much more forward than those transplanted to the ground later.

Quebec

W. S. Blair, Macdonald College

The small fruit crop as a whole has been an average one. Strawberries came through the winter in good condition. Last season being unfavorable for plant growth, the crop was not up to the average. We find that unless our plants make good development of root and crown the crop will not be large no matter how favorable the season at time of ripening. It is very important to give the strawberry patch the best of attention during summer and fall.

Currants both red and black are about average. The fruit is generally of good quality. Too little attention is given to the pruning of these fruits. They as a rule are seldom cultivated as they should be and little intelligence is usually displayed in keeping the plant in condition suitable for the development of first class berries.

Gooseberries are a medium crop. With English varieties the mildew destroyed the crops generally. American varieties in some cases show the disease present. We have tests with various strengths of lime-sulphur mixture for the control of this discase in progress on a badly infected patch, and hope to be able to report something definite as to its value for this purpose by this time next year.

Raspberries came through the winter without much injury and are giving a crop above the average. Seasonable showers are helping to swell the fruit and the quality is generally good.

Plums and cherries as a general thing are a light crop.

The apple crop will not be large but the fruit is much in advance of last year at this time. The fruit generally is quite free from scab and the apple worm has apparently not been so bad as usual, so a generally good class of fruit will be expected.

L'Islet County, Que.

Auguste Dupuis

In the county of L'Islet, the crop of apples, summer, autumn and winter, promises to be very good; plums, light; cherries, very light; gooseberries, currants and raspberries, abundant. Curculio is increasing and causing much damage to plums. Black knot is spreading in cherry orchards from which it had been eradicated for several years.

Trees both fruit and ornamental, are making a very strong growth and their foliage is very fine. Nursery trees are growing well. The aphids multiply enormously on apple and plum tender shoots, and are very hard to destroy. Garden vegetables are growing luxuriantly.

Manitoba

George Batho

The horticultural exhibit at the Winnipeg Industrial has never been a very important feature, and this year it was no more prominent nor no better than usual. Owing to lack of competition, the prize list has been pretty well shaved down, and so the competition is confined to a comparatively few sections. There were only a few cut flowers. Mrs. O. Lundgren, Winnipeg, won first in the class for 12 distinct varieties of sweet peas; Mrs. J. O. Boyle, Winnipeg, was first in the class for 10 varieties, also in the

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class for 20 varieties. A. H. Dangerfield, Winnipeg, won first for collection of pansies.

Among the exhibits not for competition, the best was the large fruit display sent up by the Ontario Department of Agriculture. This attracted a great deal of favorable attention and should help to popularize Ontario fruit on the western market. For years the British Columbia government has sent a fruit exhibit, but this year none was present. The board of trade at Nelson, B.C., put up a nice exhibit which included a good deal of fruit.

An exhibit of Manitoba-grown roses and peonies as well as bottled home-grown fruits was sent in by the Buchanan Nursery Co., of St. Charles. The Elmwood Cemetery Co., Winnipeg, filled a corner with some choice ornamental stock.

The dates for the coming provincial horticultural exhibition to be held in this city have been fixed for August 25, 26 and 27. This event, a year ago, was a great success, and there is every reason to expect a better show this year. The Brandon Horticultural Exhibition will be held in that city on August 24 and 25.

Alberta

Arrangements have been made to have a spectacular flower parade through the streets of Calgary in connection with the Horticultural Exhibition on August 12th. The idea is to have all the districts in Alberta represented in the parade, the fruit, flower and vegetable products of each district to be exhibited on floats. It is expected that this will be a feature of much interest.

At the exhibition, it is expected that there will be a grand display of horticultural products. All kinds of flowers, fruits and vegetables grown in the province will be shown in separate classes. Awards will be given, also, for the best kept and laid-out gardens, lawns and borders, best cultivated trees, window boxes, bouquets of wild flowers and collection of native flowers. The secretary of the exhibition is Mr. H. G. Burrows, Calgary.

British Columbia

YALE-CARIBOO, B.C.

Keremeos.—Apples, cherries, plums and pears, good; peaches, failure.—J. E. A.

Salmon Arm.—Apple crop will be good; plums and prunes, fair; cherries, good; pears, light; raspberries and blackberries, full crop.—J. C. B.

KOOTENAY CO., B.C.

Crawford Bay.—Apples promise to be plentiful. Some orchards are affected by canker, but we expect to control it.—R.B.

NEW WESTMINSTER CO.

Sardis.—Cherries, light; plums and prunes, medium; raspberries and blackberries, good. Apples will be medium. Canker is prevalent. Aphis of all kinds have done much damage. Black spot is showing on apples that were not sprayed.—J.B.

Agassiz.—All fruits are a very light crop. A little brown rot is in plums. Insect pests are not serious this season.—T.A.S.

Hammond.—Fruit crop is slim this year. Raspberries and blackberries are showing well. Tree fruits are light and poor in quality. Much fungous disease is showing and tent caterpillars were bad. Markets for small fruits are bad, as American fruits are flooding the prairie towns.—J.B.

The manager and secretary of the Okanagan Fruit Union, Limited, that was organized this spring, are respectively, Mr. E. E. Samson and Mr. Cecil H. Oliver, both of Vernon, B.C.

The dates for the second National Apple Show to be held at Spokane, Wash., have been changed from Dec. 6-11, to Nov. 15-20. The management is looking for a big showing of fruit from British Columbia, Ontario and the other provinces of Canada. Intending competitors can secure any information and prize lists from the secretary, Mr. Ren. H. Rice, Spokane, Wash.

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Kootenay Valley, B.C.

Edgar W Dynes.

For the past few weeks, the growers have been busy harvesting the strawberry crop. On the whole the crop appears to have been lighter than in some previous years but the returns have been much more satisfactory.

There are a number of reasons for this, among them being that the growers are learning to grow the varieties of berries that ship best; a second is that the establishment of the Kootenay Jam Factory has provided a local market for all the second grade fruit which would otherwise have gone to waste; and thirdly, the Dominion Express Company made special provision for the transportation of the berries by fitting up a barge especially for the purpose.

Perhaps, a more definite mention of these various items might be of interest. As to the transportation facilities afforded it might be well to contrast the methods adopted in previous seasons with such ill success to the methods adopted this year with such splendid results.

In previous years the berries were all gathered by the outgoing steamer leaving Nelson in the morning and reaching Kootenay Landing about noon where a connection was made with the Crows' Nest Line. This meant that the berries were loaded into the cars in the middle of the day, and, despite the fact that cars were always iced and re-iced in transit, the berries did not ship well. This year, a barge was fitted up wth a temporary top, and instead of leaving Nelson in the morning, left at six o'clock in the evening, gathering berries along the lake en route, reaching Kootenay Landing early in the morning and giving plenty of time to have the berries properly cooled and carefully loaded before train time. In this way the berries have all shipped well and the rturns have been satisfactory, netting the growers from $2 a crate and upwards and in instances as high as $3 a crate.

The impertance of the establishment of the Kootenay Jam Factory can hardly be overestimated. The *Kaslo Kootenaian* in a recent issue reports that one grower sold $400 worth of berries to the Jam Factory off three quarters of an acre after the selected berries had been shipped.

Mr. Gaunce, of the McPherson Fruit Company of Calgary, which purchased the bulk of the strawberry crop this year, expresses himself as well pleased with what he saw and commented very favorably upon the quality of the fruit sold to him and also upon the excellent manner in which it was packed by the growers. In only one instance, he said, did he have to send a crate of berries back because of poor quality or careless packing. The present indications are that a very much larger acreage will be planted in strawberries this fall than in any previous year.

The Express Company Incident

The fruit growers of the Niagara peninsula protested to the Board of Railway Commissioners, on July 7, against the raising of express rates on fruit shipped from Queenston and neighborhood to Toronto. After hearing the evidence, Judge Mabee ordered the Canadian Express Company to restore its rates on fruit from Queenston to Toronto to 30 cents as the company had agreed that the rates in effect when the Railway Commission undertook an investigation of express rates, would be maintained while the matter was before the Board. The Canadian Express Company had raised its rates from 30 cents to 40 cents despite this agreement. According to the company this was done because the business did not pay at the lower rate but, as remarked

by Judge Mabee, it is a "peculiar coincidence" that the Canadian Express Company raised its rates immediately after the Dominion Express Company had gone out of the fruit carrying business in that locality.

The decision of the Board was a victory for the fruit men, who in many cases besides this have been held up by the express companies, and it reflected much credit on Mr. W. H. Bunting of St. Catharines, who presented the case for the growers. In a recent letter to THE CANADIAN HORTICULTURIST, Mr. Bunting sums up the situation as follows:

"The complaint against the express companies for having arbitrarily raised the rate on fruit from Queenston to Toronto from 30 to 40 cents per 100 pounds was not lodged with the Railway Commission on behalf of the Queenston and Niagara shippers alone, although they were interested to the extent of hundreds of tons of fruit from these points each year, but more especially because there was an underlying principle at stake which affected the whole fruit growing community throughout the entire province.

"In the first place, the companies had given an undertaking to the Commission that there would be no interference with the rates in the way of advancing them while the whole question of the express companies' relations with the public was under consideration by the Board of Railway Commissioners. The present instance was the second time that this undertaking was violated and the chairman expressed in plain terms his views of these repeated attempts of the express companies to get away from their contracts.

"In the second place, the Fruit Growers' Committee, in proposing last January, what they considered would be a fair and equitable adjustment of express rates on fruit, took as a basis the existing rate to Toronto from the farthest point in the Niagara peninsula by way of the Canadian Express Company, as a fair rate for the entire section as far as Hamilton and, with this rate as a starting point, suggested a schedule of rates on mileage over the entire system of the two companies operating out of this district, which contemplated a general reduction of from 10 to 25 cents on existing rates, which for many years have been felt to be exorbitant and a burden to the fruit industry. This feeling has obtained to such a great extent, that wherever it has been at all possible, the growers and shippers have been forced to avail themselves of the freight service as the only alternative. This situation has resulted, however, in depriving many of the smaller towns and villages of their just proportion of the fruit grown and has at times congested the larger centres.

"The main object of the whole agitation against prevailing conditions as far as the express companies are concerned is to obtain through the Railway Commission, such an adjustment of rates in part, and such improvements in the service, as will enable the fruit growers of the province to place their commodity in the hands of the public in a speedy manner, in good condition and at a reasonable cost. Up to the present time, however, I regret to say that we have not had the co-operation of the companies in this laudable object as fully as the situation warrants.

"A concrete example of the efforts of the fruit growers to open new markets and effect a better distribution of fruit may be found in the case of a carload of strawberries sent by Dominion Express from St. Catharines to Winnipeg upon which the Company exacted a total charge of $510 and for which, largely owing to the fact that the car was not delivered on schedule time, the net returns to the shippers was some $74, barely enough to pay for the packages in which the fruit was shipped.

"We anticipate however, when the whole situation is considered by the Board, that a measure of relief will be ordered that will remove many of the difficultes under which the industry is now laboring."

Notice to Fruit Growers

J. A. Ruddick, Department of Agriculture, Ottawa

Last year this Department arranged to have one cold storage chamber reserved on four steamers sailing weekly from Montreal to London, for shipments of early apples and tender fruits, the Department guaranteeing the earnings of the whole space. Similar arrangements have been made for the present season, with the exception that the steamers will sail from Montreal alterantely to Glasgow and London. The steamers and sailing dates will be as follows:

Steamer	Line	Sailing Date	Destination
Hesperian	Allan.....	Aug. 21	Glasgow
Cairnrona	Thomson..	,, 28	London
Grampian	Allan.....	Sept. 4	Glasgow
Hurona	Thomson..	,, 11	London
Hesperian	Allan.....	,, 18	Glasgow

One chamber on each of these steamers will be available for shipments of fruit at the regular rate of freight, to be paid to the steamship companies in the usual way. A proper temperature will be maintained in these chambers regardless of the quantity of fruit which may be offered for shipment. In each case these steamers will sail on Saturday morning so that shipments should reach Montreal not later than Friday morning of the same week.

The Department of Agriculture will assume no responsibility in connection with these shipments but there will be the usual supervision by the cargo inspectors at Montreal and at port of destination. Thermographs will be installed in these chambers so that a complete record of the temperature on each voyage will be secured.

As the space in these chambers is limited shippers who intend to take advantage of the facilities offered on these five steamers must notify the Dairy and Cold Storage Commissioner, Ottawa, before making shipments, and freight will be accepted in the order in which the space is booked. Applications for space should state the number and size of the packages which are to be shipped.

In connection with these sailings the Department has arranged with the Grand Trunk Railway Company to run an iced car weekly from St. Thomas to Montreal to pick up whatever shipments of fruit may offer at the different stations between St. Thomas and Hamilton, via. Jarvis, the car to be sealed at Hamilton and forwarded to Montreal by fast freight without any extra charge for the icing or for the special service. This car will leave St. Thomas at 7.20 a.m. on Wednesday of each week, commencing August 18 and ending September 15. Following is the proposed schedule for this car showing the time it will be due at the different stations named. Freight, however, will be accepted at any station on the route between St. Thomas and Hamilton.

	Station	Time	Train	Day
Lv.	St. Thomas	7.20 a.m.	72	Wed.
,,	Aylmer....	8.05 ,,	,,	"
,,	Tillsonburg	8.50 ,,	,,	,,
,,	Delhi.....	9.45 ,,	,,	,,
,,	Simcoe	11.15 ,,	,,	,,
,,	Jarvis.....	12.15 p.m.	,,	,,
,,	Hagersville	2.00 ,,	Way-freight	,,
,,	Caledonia..	4.00 ,,	,, ,,	,,
Arr.	Hamilton..	7.00 ,,	,, ,,	,,
,,	Montreal..	3.00 a.m.	94	Fri.

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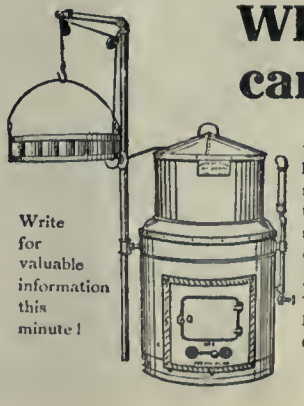

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Fruit Crop Situation

(Continued from Page 176)

crop. Cultivated red raspberries are nearly a failure while the wild ones are O.K.—J. M.F.

CHATEAUGUAY CO., QUE.

Chateauguay Basin.—Raspberries are late but a fair crop; plums, and cherries, nil. Apples are developing well, but badly marked by curculio.—P.R.

CARLETON CO., ONT.

Ottawa.—Raspberries, gooseberries, currants and grapes are over the average crop while plums are very light and apples under the average. Insect and fungous troubles are much less than usual.—R.B.W.

GRENVILLE CO., ONT.

Maitland.—Apples are growing well and keeping very free from fungi. There are very few insects of any kind and everything is favorable for a fair yield of good fruit.—H. J.

HASTINGS CO., ONT.

Belleville.—Present appearances indicate a medium crop of winter apples and the apples show a nice clean appearance.—F. S.W.

ONTARIO CO., ONT.

Oshawa.—Summer, fall and winter apples will be a medium crop this year. The apples appear to be clear of fungi and insects so far.—R.M.G.

DURHAM CO., ONT.

Newcastle.—Prospects are for a fairly good crop. Apples are not as good as the blossoms promised. Tho drop was heavy because of the early drought and apples do not need thinning this year. Good rains have saved the situation and we look for a fair quality of good sized fruit. Buyers are offering $1.00 on the tree.—W.H.G.

PEEL CO., ONT.

Lorne Park.—Raspberries will be a full crop and good samples. Apples will be only a medium crop. Much fruit has fallen and trees are badly infested with a leaf-curling aphis. The strawberry crop in this district was a full one but prices were low, averaging about 5½ cents for the season as against 7 cents last season. Raspberries will probably not average much higher. Melons are late. The cut worm has been busy.—L.A. H.

NORTHUMBERLAND CO., ONT.

Colborne.—Medium crop of apples expected. Pears are light. Grapes promise a good crop and other small fruits are plentiful.—W.E.

HALTON CO., ONT.

Burlington.—Apples are fair to good crop; pears, light; plums, fair to good; cherries, good; peaches, light; currants, fair; raspberries, fair; blackberries, good; strawberries, light to fair; gooseberries, fair to good. The codling moth is beginning to show.—A.W.P.

LINCOLN CO., ONT.

Queenston.—Bountiful rains have saved many thousands of dollars for the fruit growers. The prospects are for a full crop of peaches, a fair crop of plums and a very light crop of pears. Grapes promise a full crop. Raspberries are doing well although somewhat injured by the drought. Blackberries should be a full crop. There are practically no apples in this section.—H.S. F.

NORFOLK CO., ONT.

Simcoe.—The apple crop is about 60 per cent. of last year's crop. Aphis has done considerable damage.—J.E.J.

LAMBTON CO., ONT.

Forest.—The apple crop promises fair. The dry weather is causing the fruit to drop considrably.—D.J.

SIMCOE CO., ONT.

Orillia.—Apples are not as numerous as last report seemed to indicate. The June drop was heavy. Not enough are left to make a good crop but they are looking well so far, not being troubled with either insect or fungus pests. All bush fruits are good.—C.L.S.

BRUCE CO., ONT.

Walkerton.—Raspberries promise well if weather is favorable. Gooseberries and currants are good; cherries, light; plums, medium; peaches, good; pears, light; early apples, light; winter varieties, medium to a full crop. Quality is good at present.—A.E.S.

GREY CO., ONT.

Clarksburg.—All kinds of fruit have made wonderful progress since last report. Apples set very heavy and are staying on well. Unless there is a lot of thinking done, there will likely be a lot of inferior fruit on the orchards that are not under cultivation. The trees that were sprayed well are pretty free from worm and scab. There is a very good crop of cherries but a lot of rot where trees were not sprayed.—J. G.M.

YALE-CARIBOO, B.C.

Vernon.—There will be an average crop of apples, plums and prunes. The past hard winter followed by late spring frosts seriously affected the pear, cherry and peach crop, which will be much less than usual. Raspberries and blackberries are a good crop. This has been a bad season for insect and fungous pests so far.—A.T.B.

Gellatly.—Small fruits are a good crop. No peaches or cherries. Apples and prunes are a good crop and plums light. Grapes are very poor. The small fruits are in good condition now. Aphis of all kinds are quite numerous.—D.G.

VANCOUVER ISLAND, B.C.

Victoria.—Apples and pears, only fair, plums, good; raspberries, fairly good; logan berries, plentiful. Some aphis showing.—A.H.J.

(See also Page 180)

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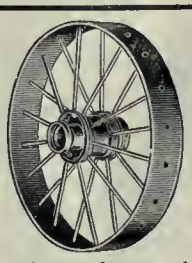

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About Cooper's Fluids

Considerable interest has been taken in Cooper's Spray Fluids since they were introduced into Canada last year. As is the case with all new spray mixtures, most fruit growers have been waiting for accurate reports of their value in this country before using them for more than experimental purposes. Caution has been practised and rightly so. Various reports on tests with these fluids have been received by THE CANADIAN HORTICULTURIST, some of them strongly adverse. As they have been tested by a large number of orchardists in Oshawa, Bowmanville and Newcastle, an editorial representative of THE CANADIAN HORTICULTURIST, who visited that district in June, made some enquiries regarding the results that have been secured there.

Mr. E. C. Beman of Bowmanville said that he had used V.1. Fluid with no satisfactory results. On investigation, however, our representative was told that Mr. Beman's men had sprayed the same trees with some other mixture and covered the V.1. A definite report on the fluid therefore could not be given. One other grower, who had tried V.1. only twice, also stated that he did not consider it of much use.

At Bowmanville, Mr. Hamley has an orchard that two years ago was dying from infestation by the orchard-shell scale. Many of the trees had to be cut out wholly or in part. In the spring of 1908, they were sprayed with V.1. Fluid and again this spring. The orchard was inspected by THE CANADIAN HORTICULTURIST last month and appeared to be in excellent condition, barring the evidence that it gave of past injury. The trees were healthy and none of the scales that still adherred to them and that were examined were alive. Mr. Hamley is much pleased with the results and attributes the change to the use of this fluid.

At Newcastle, Dr. Robt. McIntosh also told our representative that his trees were dying two years ago from the scale. He used V.1. Fluid in the spring of 1908 and also this spring and is now using V.2. "My trees were becoming worthless," said the doctor, "as can be seen by the limbs that have been pruned away and by the markings of scale that still can be seen on the bark. The trees were completely encrusted. This year they are looking fine. I am perfectly satisfied with V.1. and think that all growers should give it a fair test accompanied by V.2. and extending over two seasons at least before condemning something that they have scarcely tried, if at all."

Both V.1. and V.2. were used last year and this by Mr. J. K. Allen, of Newcastle, who told our representative that he considered them the best mixtures that he had ever tried. "Although my orchard was in bad shape before using them," said Mr.

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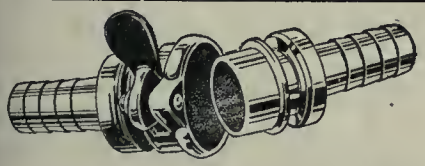
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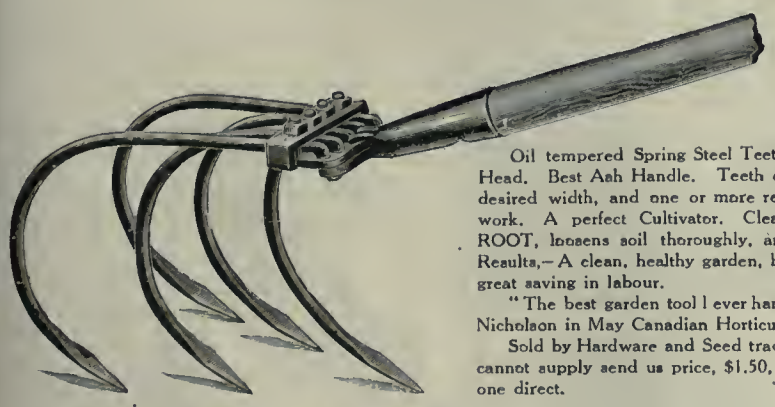

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Allen, "the trees never looked better than they do this spring. The growth has been exceptional and has been remarked about by my neighbors. These fluids will control oyster-shell all right. I used V.1. in November last year and intend in future to give one spraying in the fall."

Benzoates as Fungicides

W. F. Van Winckel, Toronto

During the last two or three seasons, Mr. Herbert H. Dow, general manager of the Dow Chemical Co., of Midland, Mich., has been experimenting with benzoates as fungicides on his orchard. Having had considerable experience with benzoates as food preservatives, Mr. Dow concluded that benzoates should also kill any fungi or bacteria on unripe fruits; consequently, during the season of 1906, when a crop of plums began to rot when only about two-thirds grown, sodium benzoate was sprayed, and although the spread of the rot was entirely stopped, the sodium benzoate being exceedingly soluble was so easily washed off as to necessitate spraying after each rain. This led to experiments with the more insoluble benzoates, and the calcium salt was found more satisfactory.

Experiments during the season of 1907.—Eight have shown calcium benzoate used in conjunction with a very weak Bordeaux to be very effective; also this mixture was found to adhere much better than ordinary Bordeaux. The most effective mixture is made as follows: One pound of copper sulphate is dissolved in 10 gallons of water, and to this is added one pound of calcium benzoate dissolved in 10 gallons of water. When well mixed, one pound of lime is added and water sufficient to make one barrel (40-42 imperial gallons.)

One very prominent authority (Thorfe) gives the relative efficiency of a number of different fungicides and according to this table one part of sodium benzoate to 2,000 parts of water will prevent all fungus growths, while to accomplish the same results with copper sulphate one part to 133 of water is required. Calcium benzoate would be approximately the same strength in fungicidal value.

For potato scab soaking the potatoes in a solution of one ounce calcium benzoate to a gallon of water (for three or four hours) is highly recommended, and the Michigan Agricultural College reported a yield of 80 bushels to the acre more where benzoate Bordeaux was used as a spray, than where ordinary Bordeaux was used.

Benzoates are not poisons, and where an insecticide is desired as well as a fungicide, calcium benzoate has been used with lead arsenate and adheres exceedingly well to the foliage, giving splendid results.

[NOTE.—Should any of the readers of THE CANADIAN HORTICULTURIST desire samples of benzoate for experimental work, it is probable that they could get same by applying to the author of the foregoing article. Address, 148 Van Horne St., Toronto.—Editor.]

Buy a kodak and take some photographs of your lawn and garden.

The Ottawa branch of the Ontario Vegetable Growers' Association had a pleasant and profitable outing on the afternoon of July 8th, as guests of the Ottawa Nurseries. Mr. W. J. Kerr conducted the party over the nurseries. Addresses were given by Messrs. W. T. Macoun, Alex. McNeill and others.

The decorative floral display will again be a feature of the floriculture exhibit at the Canadian National Exhibition, Toronto, this year. These immense banks of flowers cover 500 square feet and the premiums total $1100. Those who saw this display last year will not miss the opportunity of seeing it again.

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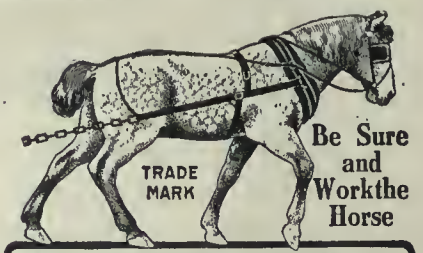

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The Canadian Horticulturist

Vol. XXXII SEPTEMBER, 1909 No. 9

The Better Judging of Fruits

Charles Webster, Kelowna, British Columbia

THE first national apple show held at Spokane, Washington, last December, while doubtless the largest display of apples ever brought together, was also a skillfully managed and thoroughly successful event. Eight carloads of 630 boxes each, entered in competition in Class I.,calling for "best carload of standard commercial apples," is but one instance of the magnificent scale upon which the show was run. There were other features, typically western in being about the best possible and showing independence in thought and action. Several fruit farms and a customer at $25 a box for the first prize boxes in a certain section, were some of the novelties in prizes.

By-products of the apple—cider, apple butter, apple vinegar, apple jelly, etc., home-made and factory-made — won numerous awards. In the apple kitchen the king of fruits, daintily served in about every conceivable way by a bevy of college girls, was an innovation that proved very popular and will surely result in an increased use of this wholesome fruit by thousands who attended the show.

THE JUDGING SYSTEM

The splendid system of scoring by points must have been gratifying to the judges and was surely utter fairness to the exhibitors. This feature of the great show seems to have been but little commented upon by the horticultural press. In view of the notes about better judging of fruit in recent issues of THE CANADIAN HORTICULTURIST, a review of the methods of judging there may interest some of its readers, and may suggest some points worthy of adoption at the fruit shows of our Dominion.

A grand system was used in judging the plate exhibits. The judges were asked to score each variety on its merits as an apple as well as award prizes. A score from one to ten was used. Varieties that scored lower than three, were awarded no prizes. Some sorts were not scored at all. The field was open to any variety, new or old; the foregoing simple method will, however, gradually discourage the exhibition of comparatively worthless kinds at future shows.

Every entry winning a fifth prize or over was awarded a diploma or diplomas and cash prize according to the scoring. In the case of a variety scored ten by the judges, the winner of first prize received a diploma and $5; second, diploma and $2; third, diploma and $1; fourth, medal and diploma; fifth, diploma. Varieties scoring only three and four points received prizes as follows: First, $1 and diploma; second, fifty cents and diploma; third, diploma. Varieties scored intermediate to these instances were awarded prizes in proportion.

In the box and carload classes, the system was ideal, the judges having to show on score card just where the points had been earned as well as indicating (as in the plate fruit section) *how much* better they deemed one entry than another. An instance of score card will illustrate clearly:

General display, No. 2—Class 2—For best individual, county, district, state or provincial exhibit of apples. Each exhibit to consist of two barrels, two boxes, two plates, two baskets and two jars of apples. No package to contain more than one variety:

SCORE CARD—SPECIAL DISPLAY.

Entry No.		47	23	57
Texture and flavor	15	14	13	12
Size	10	10	10	8
Uniformity	10	9	8	8
Color	10	10	10	9
Condition and freedom from blemish	20	18	18	17
Arrangement	10	8	5	7
Number of varieties	25	25	25	25
Total	100	94	89½	86

Figures in first column represent highest possible score. There were nine entries. Kelowna was entry No. 47 and she is justly proud of her success, as first prize meant $500 cash and $25 each from a Spokane merchant for the two first prize boxes. Rather a record price for a bushel of apples. Kelowna was also fortunate enough to win at the same time the greatly coveted silver loving-cup presented by the Seattle Chamber of Commerce to the exhibit in this class scoring highest points for texture and flavor. It is an open question whether eastern fruit excels in texture and flavor, but it is pretty certain now that British Columbia grows the finest flavored apples in the west.

For Progressive People

I sincerely hope that THE CANADIAN HORTICULTURIST will soon have a vast circulation throughout Canada. It fills a long-felt want, and should become very popular, especially among progressive people in the rural communities.—Dr. J. E. Klotz, Lanark Co., Ont.

For Foreign Countries.—No. 6—Class 5.—For best two barrels or six boxes from foreign countries:

SCORE CARD—FOREIGN BBLS. AND BOXES.

Entry No.		211	47	46
Variety	20	15	18	15
Commercial value	30	25	28	28
Uniformity	20	16	19	18
Attractiveness	20	16	18	18
Total	90	72	83	79

PACK SCORE (BOXES.)

Bulge or swell	20	16	18	17
Alignment	20	15	17	16
Height of ends	20	16	17	17
Firmness	20	15	18	17
Attractiveness	20	18	19	18
Total	100	80	89	85

All prizes in this section, first, second and third, were won by British Columbia. Kelowna was entry 47. Second and third were won by Mrs. Smith, Spence's Bridge, (46), and Mr. Cockle, Kaslo, (211), respectively.

No. 12.—Class 7.—For best packed two barrels.—No barrel packing is done in Kelowna, the standard Canadian apple box being used exclusively, therefore Mr. De Hart who packed this exhibit and who had had no practice for years, deserves great credit for winning first prize. As I have been unable to get details of the score, only the possible points are shown:

SCORE CARD—TWO BARREL PACK.

Entry No.			
Fruit	(a) Quality	10	
	(b) Appearance	50	
			— 60
Packing	(a) Staves	3	
	(b) Hoops	5	
	(c) Heads	4	
	(d) Nailing	3	
			—15
Packing	(a) Facing	10	
	(b) Tailing	5	
	(c) Pressing	5	
	(d) Racking	5	
			— 25
			100

In the fruit score it would almost seem as if fifty points for appearance was a handicap for eastern barrel fruit which

seldom equals the western product in color. The package and packing scores are very comprehensive, however, and well worth adoption elsewhere.

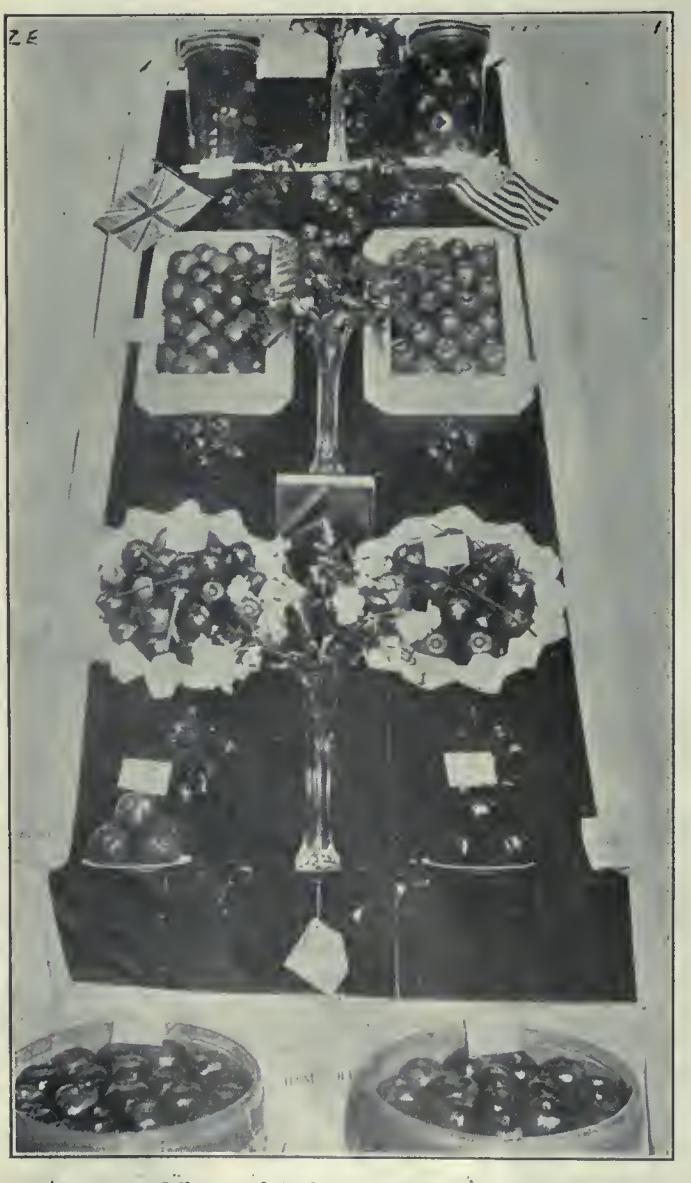
Other important winnings were ten boxes Jonathan; one of the items in this prize was a $2,000 fruit farm at Edendale, Wash. Best four-tier box Jonathan. This variety is very widely grown west of the Rockies, there was consequently great competition. First for ten boxes Northern Spy and first for plate of same variety. The prize for best ten boxes included a $1,200 fruit farm in the state of Washington, so that this "orchard city" of British Columbia has now added to her qualifications the distinction of being a United States landlord.

As several of Kelowna's prizes have been mentioned in the columns of THE CANADIAN HORTICULTURIST before, I will touch on but one more of them,—the second prize for the exhibitor winning greatest number of first prizes. As we missed first prize by but three points, we are justly proud of our second place.

A Part of the Kelowna, British Columbia, Display at the Spokane Apple Show

In this class each exhibitor was allowed 12 x 18 feet of space. Kelowna lost first place to the Wenatchee Valley, Wash., by three points. Mr. DeHart stands on the left and Mr. Gibbs on the right.

To Mr. F. R. E. De Hart the utmost credit is due for his untiring efforts in collecting the exhibit in so short a time and his splendid staging of the fruit at Spokane. So public spirited a man is a valuable adjunct to a fruit section. Mr. James Gibb, an expert from Stirling and Pitcairn's packing house, accompanied Mr. De Hart and his faultless packing helped to place this city in the lime-light as a fruit-growing centre.



First Prize Collection of Apples at Spokane Show last December

Display of Mr. F. R. E. DeHart, Kelowna, B.C.

Principles of Plant Breeding*

Prof. W. Lochhead, Macdonald College

A GREAT deal of attention is now being given to the improvement of plants by the separation of mutations. The recent studies of De Vries of Holland, of Nilsson of Sweden, of Burbank of California, and of others, have revealed the importance in breeding of variations that appear suddenly, sometimes of such magnitude that they are designated as "sports." As a rule, this kind of variation or mutation is not of frequent occurrence, although the work of Nilsson with cereal crops would lead us to believe that such varieties are to be found in considerable number in every field of grain.

We do not know the causes that bring about these mutations, nor can we produce them at will. A practical difficulty lies in being able to distinguish them from variations of the ordinary sort. The only test is to breed them. Mutations come true to type and do not show any tendency to revert to the normal or parental type.

It will be gathered, therefore, that "ordinary variations are of value mainly in the production of improved strains of a race which differ only in such characters as high yielding capacity, which are soon lost when the selection is discontinued. Mutations or sports, on the contrary, are of value in the production of distinctly new races and varieties which maintain their new characters without continued selection."—(Webber.)

It must not be inferred, however, that mutations remain absolutely constant and without variation. They, too, are liable to vary within definite limits, so that when a mutation is chosen on account of its desirable and superior qualities, it is necessary for a breeder to keep up a selective process if he wishes to get the best possible plants of the mutation.

"Mutations are found in wild as well as cultivated plants, and their occurrence reasonably accounts for the numerous 'elementary species', or sub-divisions of Linnaeus' species that are found in Nature."

EXAMPLES OF MUTATIONS

Well known examples are the weeping willow and the nectarine, but many other plants are now classed as mutations. Some of the most popular and most high-

*In the June issue of The Canadian Horticulturist, the improvement of plants by selection was discussed. Mutations, herewith dealt with, will be followed by an article on hybridization.

ly prized of our smaller fruits, such as the Houghton and Downing gooseberries; the garden strawberry (*Fragaria Chiloensis*); the Wilson's Early, Lawton, Wilson Junior and the Eureka blackberries, and the Wolf and Quaker plums are mutations. The apricot is probably a mutant of the plum. The purple-leaved plum (*Prunus pissardi*), an ornamental species, may be classed as a distinct mutation.

Most of our best varieties of grapes are probably mutations. The Catawba is a sport of the wild grape; the Concord and the Clinton are seedlings of wild grapes and are very likely true mutations

The history of the apple is obscure, but it is generally believed that the modern varieties have been derived from several "elementary species" of the wild crab. As a matter of fact we know for a certainty of the origin of the Wealthy, the McIntosh Red and others.

De Vries' wonderful discoveries of the mode of origin of several new species of evening primroses from Lamarck's evening primrose are now fairly well known to readers, as are also his observations on the origin of the Pelonic toadflax, from *Linaria vulgaris*, a double marigold from *Chrysanthemum segetum*, and a twisted variety of *Dracocephalum Moldavicum*.

Suffice it to say, that after De Vries had detected Lamarck's evening primrose in a mutating condition and had transferred some of the roots and seeds from the field to his garden, he grew over 50,000 individual plants. Out of this number of plants more than 800 showed mutation, which comprised about fifteen new kinds. Some of these appeared time and again in the course of the experiments, which extended over a number of years.

MUTATIONS IN NATURE

These are examples of mutations that sometimes occur in nature. De Vries found these mutations "to occur suddenly, without preparation, and without intermediates." Among garden and house plants we may notice two or three mutations: The cut-leaved variety of the greater celandine, (*Chelidonium laciniatum*) discovered in 1590 by Sprenger at Heidelberg, which is distinguished from the ordinary species (*C. majus*) by the narrow cut lobes of its leaves and petals; the white cyclamen which made its appearance in 1836 in Holland; the cockscomb (*Celosia cristata*) and others.

The Shirley poppy originated definitely and suddenly as a mutation of the common wild poppy (*Papaver rhoeas*) in 1880. This poppy is characterized by the presence of a narrow white border on the petals, and was discovered as a solitary flower by the Vicar of Shirley near Croydon, England. It is unnecessary for me to give more examples, but simply to refer you to the literature of horticulture, where mention is made of the many "sports" that have occurred.

Burbank's wonderful success in the origination of new and valuable varieties of plants is largely due to his ability to detect new and original forms which arise in his breeding grounds. He grows thousands, even tens of thousands of seedlings, and from these he selects those that give promise of greater usefulness. In many cases the plants he chooses are mutations. Oftentimes he causes a staple variety to vary by crossing it with a closely related form, and from the variations he selects the most likely forms. By selection he then brings the plant up to his ideal.

The Fameuse Apple

R. W. Shepherd, Montreal

THE orchard shown in the illustration on this page has suffered much from winter killing the last four years. The varieties are Fameuse (Snow) and McIntosh. The latter has stood the severe winters better than Fameuse. I have found that much cultivation in this province rather tends to induce too late a growth and, consequently, the young wood is not well enough prepared for a severe winter. The Fameuse is apt, in any case, to grow late in the season, and does not generally finish off its terminal growth in preparation for our winters, as well as the McIntosh. All growers in this vicinity complain of much winter killing in late years.

Orchard of Fameuse and McIntosh

If the orchard is not well protected by belts of trees from the cold winter blasts, when the thermometer falls to twenty degrees below zero for three or four days, there is sure to be a loss in that orchard of Fameuse the following spring. Once the trees are seriously damaged by severe winters, and become black-hearted, the days of those trees are numbered; they will gradually succumb. No nursing will help them.

In the province of Quebec fifty years ago, the Fameuse trees were hardier and better able to withstand the winters. Probably there was more natural tree protection to the orchards, and also, probably, the Fameuse trees of those days were of a more robust constitution.

Much of the delicate constitution of the Fameuse we may attribute to the practice of cutting scions from unhealthy trees or trees that are slightly blackhearted. Nurserymen are not particular enough about the healthiness of the trees from which they cut scions. At any rate, it is well known fact that Fameuse trees, which fifty years ago were expected to live at least forty or fifty years, do not now live beyond twenty-five or thirty years. Of course, on the Island of Montreal and around St. Hilaire Mountain, there are orchards of Fameuse of fifty years of age or more, and in good condition, but the orchards that have been planted within the last twenty-five years in these sections show weakness and a tendency to decline; therefore, I cannot trace this weakness to any other source but the selection of scions from unsound and unhealthy trees. It may be that thoroughly healthy scions are very difficult to procure.

We must remember that the Fameuse variety is probably 150 to 200 years old and, perhaps, there is a time when a variety must begin to decline. I predicted two years ago, at the winter meeting of the Quebec Pomological Society, that the

Potatoes Growing Between Trees

In Orchard of Mr. R. W. Shepherd, Como, Que. Photo taken two years ago.

days of the Fameuse were probably numbered; that fewer trees were being planted in this province; that growers were planting McIntosh Red in place of Fameuse; and that, therefore, in a few years the Fameuse would be a scarce apple and high priced. I am still of the same opinion. McIntosh will become cheaper every year, because more apples of that variety will come on the market.

At present, McIntosh commands as high price here as Fameuse, but in a short time it will not be so. Fameuse is our best dessert apple and has no competitors, in that respect, of its season. McIntosh is a fine apple but it has not the high, delicious flavor of Fameuse. The English gentry always prefer the latter. They find the McIntosh too large for dessert and not of as high a quality. Where Fameuse of first quality has been introduced into England, they will not take McIntosh instead. I speak from experience.

Keeping Bees in the Orchard

W. I. Holtermann, Brantford, Ontario

IF the question were asked, "How many people dislike honey?" there would be very few say that they are among the number. Then why should not we keep our own source of supply?

Most agriculturists keep their own orchards and berry bushes and few ever want for fresh fruit, while many are even specializing in that line. Then, why not combine bee-keeping with fruit-growing, even if for home consumption only, and have some of the busy workers to help gather the nectar, which is going to waste all through the country for lack of nature's workmen?

A beginner will find it interesting, as well as profitable, to work a few hives of bees, but, as in any other businesses, things should be studied carefully and, if possible, with a few suggestions from a practical bee-keeper or from a reliable book on the subject.

HOW TO START

A wise plan to start would be to secure a first swarm in a standard hive; if possible, a Langstroth, or Richardson, or any of the many hives parts of which are held in stock by any firm dealing in supplies. If an odd-sized hive is used trouble will be found in securing extra frames, sections, etc. The Langstroth is used perhaps more than any other size in Canada.

Italians are very suitable bees to start with, as they are good workers, generally free from moths and black brood, are large gentle bees and beautiful to look at. A great many bee-keepers prefer the hybrid and black bees, when running for comb-honey because they finish up the cappings much whiter, leaving a small air space between the honey in the cell and the capping, while the Italians cap close and have the section watery in appearance. But, as a rule, hybrids and blacks are small, hot-tempered insects, not quite suitable for a beginner, who is perhaps a little doubtful of his own safety.

When handling them first prepare yourself with a veil of some variety, one with a black front is preferable as things are more easily observed through black veiling. Gloves or mittens of any kind are very unhandy and make many cross bees through awkwardly manipulating the combs. The operator will soon find that if he uses his smoker at the proper time he will have few really cross bees that are angry enough to sting the hands.

USE OF SMOKER

Before opening the hive, give one or two puffs at the entrance, and gently smoke over the top of the frames as the cloth is drawn off the top; be sure and smoke all the top over or there may be a surprise from a corner that has not been smoked at all. Smoking drives the bees to their stores and they soon fill themselves with honey and are too distended to wish to sting at a slight slip on the handler's part. Then loosen both ends of a comb with a small screw driver or similar tool and after spreading the frames away from the one you wish to examine, it may be carefully removed. Thus the whole hive may be examined.

A Good Type of Hive

In Apiary of Dr. Burt, Lynn Valley, Ont., located in Orchard of Mr. A. Austin, of the same place.

Rough and Ready Yard of Movable Langstroth Hives

Apiary of Mr. R. F. Holterman, Brantford, Ont., in Orchard of Mr. A. Lambkin, St. George, Ont.

Do not allow the bees to sulk and hang about the entrance of a hive. Give them room by putting on a top surplus box, unless you wish increase by natural swarming.

When putting on a surplus box of any kind, always place a queen excluder of perforated zinc over the brood chamber, between it and the top super—thus shutting down the queen and leaving the top for storing honey only. Full sheets of foundation should be used when preparing frames for the hives, because there is no trouble in securing enough drone comb naturally without allowing them to build the combs that way intentionally. Drone combs are not objectionable for storing surplus honey, but combs are

often exchanged down into the bottom or brood chamber and the queen does much useless drone laying.

FERTILIZING BLOSSOMS

Bees are not only a means of money-making to the bee-keeper alone. There are many others who profit from the busy little workers so full of industry. Bees are one of the principal agents of Nature in fertilizing many of the blossoms which, when properly set and ripened, go to supply us with food of different varieties.

The orchard is perhaps among the most important crops affected in this way. The experienced fruit-grower likes to see the busy little gatherers at work among the bloom, because he knows that unless the blossoms are fertilized they cannot set. While there are many other ways in which the blossoms are fertilized, the bee is a very active worker along that line.

Marketing Early Grapes

G. H. Carpenter, Fruitland, Ontario

TWO important factors enter into the proper handling of any class of fruit —the condition of the fruit when picked and the package. Carelessness and indifference in the matter of either or both of these factors frequently result in loss to the grower when he comes to market the fruit. We will consider these factors in regard to the handling of early grapes.

Unlike many other classes of fruit, grapes will not ripen off the vines. The fruit must be allowed to fully mature and become properly colored before being gathered. The importance of the first factor then becomes apparent. Picking the crop is equally important; when the fruit is being sold for commercial purposes it is picked in the standard six-quart basket, and seldom re-packed. As stated, it must be picked when mature; consequently, it will be seen that the grape is a more perishable product than most other fruits which can be picked before fully ripened when required to ship long distances. Picking should be carefully supervised by some experienced person who should instruct his help in the matter of removing the branches from the vines, and placing them in the baskets in such a way as to make a neat and attractive looking package.

When a high-class trade is being supplied smaller and fancier packages are employed and the fruit is generally re-packed in a packing house in order to insure a high-class article. In any case, when a superior and inviting package is desired, it is safer to re-pack the fruit, being careful in the operation to remove all green and broken berries. This involves extra work but, in most instances, it is work well expended.

SELLING INDIVIDUALLY

Many men can grow fine crops but few can market their crops to best advantage. Those growers who are situated near a good market have an advantage over growers not so favorably situated, as they can place their fruit directly into the hands of the consumer and thus secure all the profits to be realized from the sale of their fruit. The majority of growers, however, must sell through some one else. With them it is a question of reducing the number of middlemen as much as possible, and of securing the right parties in each instance.

SELLING ON COMMISSION

Selling through commission houses is, at best, an unsatisfactory system of disposing of fruit. These men, as a class, fill an important place and many growers have to resort to this means of selling their fruit. There are individuals in this class, however, who are in the business because they feel they are dealing with parties who are woefully susceptible to the "skinning" process. In adopting this system, therefore, it is well to keep closely in touch with market conditions, and have your fruit reach the market in the most direct way possible.

SELLING TO LOCAL BUYERS

The local buyer offers another means of disposing of fruit which is but little more satisfactory in many ways than the former system. These systems suggest the need of grading this class of fruit. When the fruit is bought and sold indiscriminately the price often is knocked down because of the presence in a consignment of the inferior product of some careless grower. The whole consignment will sell for the price of the inferior goods and the producer of a superior article will be the loser. He will receive no compensation for the extra care employed in the preparation of his fruit for market.

NO VOICE IN SETTING PRICES

An unsatisfactory feature about both of these systems is the fact that the grower has practically no voice in the setitng of the price on his fruit. We would think it mighty strange if a grocer were to ask us what we would give him for a pound of tea or a barrel of sugar, or a butcher how much we would pay for a quarter of beef. Such a practice is, indeed, rare. And yet producers of fruit are so accustomed to having the prices set on their goods, that it becomes a matter of habit for them to ask a purchaser what he will give for this lot of grapes or that consignment of peaches. Is there any good reason why the grower should not set the price on his goods the same as is done in other lines of business? Market gardeners and fruit growers who have access to markets are able to set their own prices largely and there seems to me no good reason why all growers should not follow the same practice.

THE CO-OPERATIVE SYSTEM

Another system and probably the most satisfactory one for all concerned is disposing of fruit through co-operative fruit associations. When a number of growers co-operate to sell their fruit, a more uniform product is put up, a better market usually is secured and more remunerative prices are obtained than when growers work individually and possibly cut one another as frequently is done. In these associations, a manager is employed whose duty it is to see that all fruit comes into the central station in good condition, and is sent out properly packed and marked according to the standard set by the association. This insures a uniformity of product. Quotations are sent out through the country and the fruit is placed through agents acting for the association. These agents are conversant with market conditions and, knowing the quality of the fruit they are handling,

Campbell's Early—One of the Best Varieties of its Season

(Continued on page 202)

A Model Park for Barrie, Ontario

WITH the great strides that are being made in park development throughout Canada, there are few undertakings so thorough, original and modern as that recently initiated in Barrie, Ontario. The authorities set a high standard at the outset and determined to get the best advice procurable, in a wise faith that there should be a saving in the long run. Mr. George H. Miller, a noted young landscape architect of Boston, Mass., was retained as advising associate for his Canadian representative, Mr. C. Ernest Woolverton, of Grimsby.

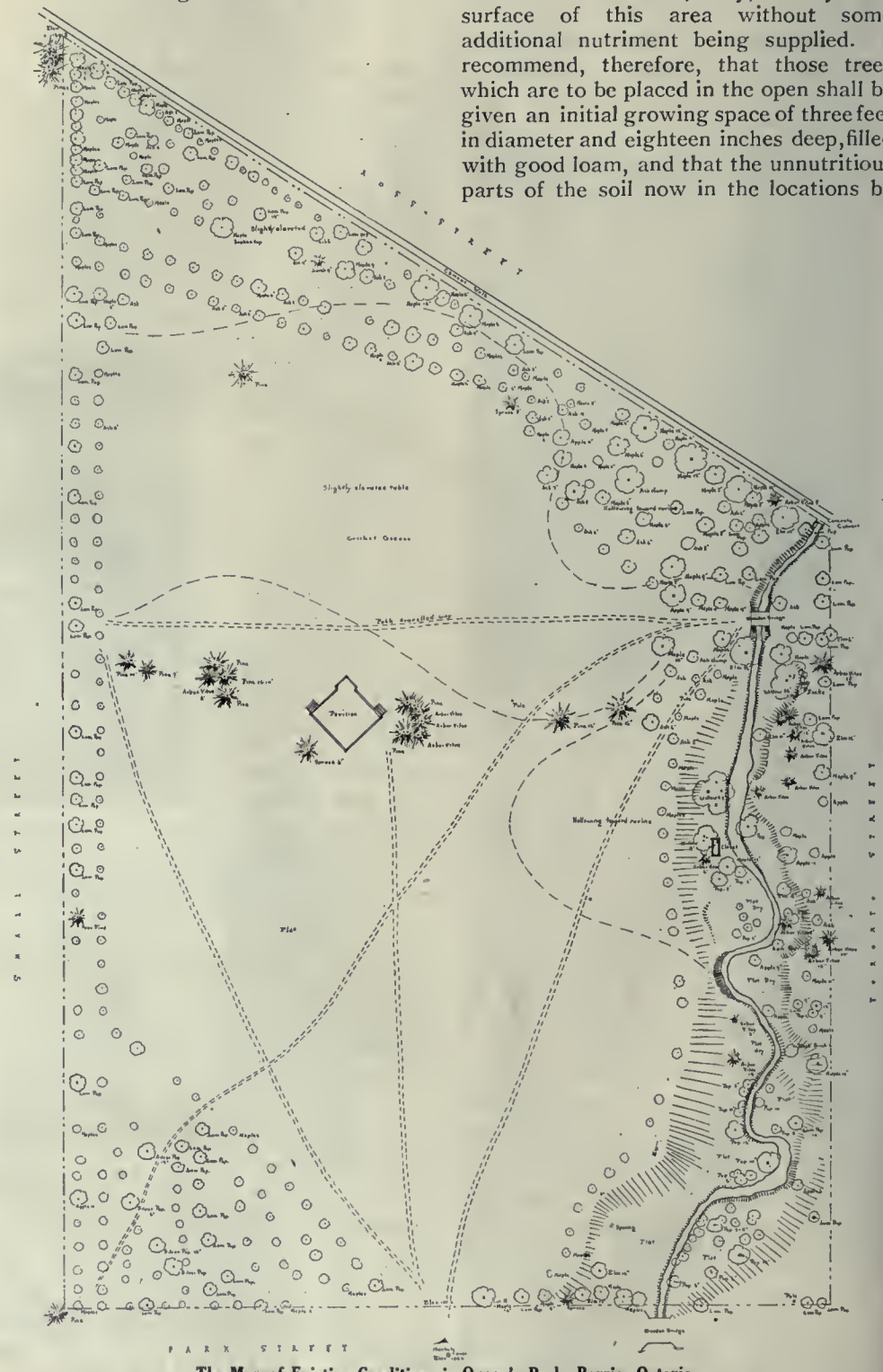
Last summer, Mr. Miller visited Barrie while on a tour inspecting some work in Rochester, Hamilton and Toronto. He was greatly impressed with the future of that town and pointed out to the city officials that some day not in the far future Barrie would not only be an independent industrial junction but also a great centre for high class country estates, and that preparation should be made in advance for the preservation of the natural beauty of the town and landscape and the planning of parks and town extensions in such a way that they should have their full value as assets in bringing about the realization of the countryside's best eventual characterization.

Barrie has made a beginning in the development of Queen's Park, a ten-acre tract in the better residential section of the town. The improvements are planned in relation to the whole town plan and it is to be a "place for mental and the less violent physical exercises, a space reserved for neighborly diversion with congenial uplifting environment, a residential beauty park, a common ground for quietude, refined intercourse, rest and mental recreation, and for such athletic games as will not be competitive between teams having gregarious followings." Provision for athletic fields and playgrounds is to be made in other more suitable locations. Among the features proposed are "the great lawn," "the promenade," "the outdoor auditorium," "the grove," "the flower mall" and "the ravine." Each feature correlates with the other and takes advantage of the natural existing conditions; of the shape of the tract, of topography, tree growth, natural traffic and views. There will be a central dominant feature in the form of a concrete pavilion, and there will be a concrete entrance exedra monumental in design, a concrete bridge and many minor features such as belvederes, a spring-nookery and colonade.

From the local horticulturist's point of view, the matter of planting was one that required great care because of the climatic and soil conditions and the unattractive arrangement of existing natural growth. In the landscape architect's report on this subject there is much to interest and instruct all planters and park officials of Canada. Mr. Miller writes as follows:

"The planting is used for esthetic and educational purposes and the varieties selected are those known to be hardy in the Barrie region either through their being native, tried locally by me, or recommended by the Central Experiment Farm at Ottawa. A great many attractive varieties which might thrive have been omitted from the list, and none included that are not positively determined as above.

"The soil condition is especially suitable for a limited number of varieties, such as the Caragana, Corylus, Ceanothus, etc., which flourish in a dry sandy situation. The fact must be recognized, however, that it would be useless to expect any sufficient number of attractive groupings to be arranged that would flourish in the thin, dry, sandy soil surface of this area without some additional nutriment being supplied. I recommend, therefore, that those trees which are to be placed in the open shall be given an initial growing space of three feet in diameter and eighteen inches deep, filled with good loam, and that the unnutritious parts of the soil now in the locations be



The Map of Existing Conditions in Queen's Park, Barrie, Ontario
Shows much tree growth not of natural origin, but planted by the hand of man

removed. For the bed areas, I recommend that in the autumn of the year, before planting, the surface be covered with rotted manure, about twenty cords to an acre in quantity, and that in the spring, immediately before planting time, the same shall be well spaded into the existing soil. This operation should be repeated once a year for at least three years. Precaution should be taken in the bed grading to see that no pools or water pockets are liable to form, for it has been my experience that in such situations, under the soil and climatic conditions given, there is most danger of winter killing. With the prescribed preparation of ground, proper planting and caring for the plants, there is no reason why the plants should not live and develop the desired effects within a few years. The varieties have been selected for those places for which they are naturally most suited." Then Mr. Miller proceeds to define the two different purposes of the planting as follows:

THE ESTHETIC PURPOSE

"While the boundaries of the park have been defined by foliage masses, care has been exercised to not injure the views into the park from the surrounding residences and thoroughfares and at the same time to furnish sufficient seclusion within the park, framing the house-gables and shutting out the dirt road-surface of boundary streets as now seen from the park.

"The divisions of the park are defined by foliage masses and all the matured existing trees have been taken advantage of and conforming varieties selected to complement them in the groups. In the arrangement consideration has been given to economic values, such as that of binding root formations suitable for holding up the sandy banks of the ravine, also requirements as to sun and shade and moist and dry situations, compositions of size and color and texture of foliage and habit of growth. Evergreens have been introduced to break the winter monotony and are composed for natural and formal effects, and winter berry- and twig-values have been taken advantage of.

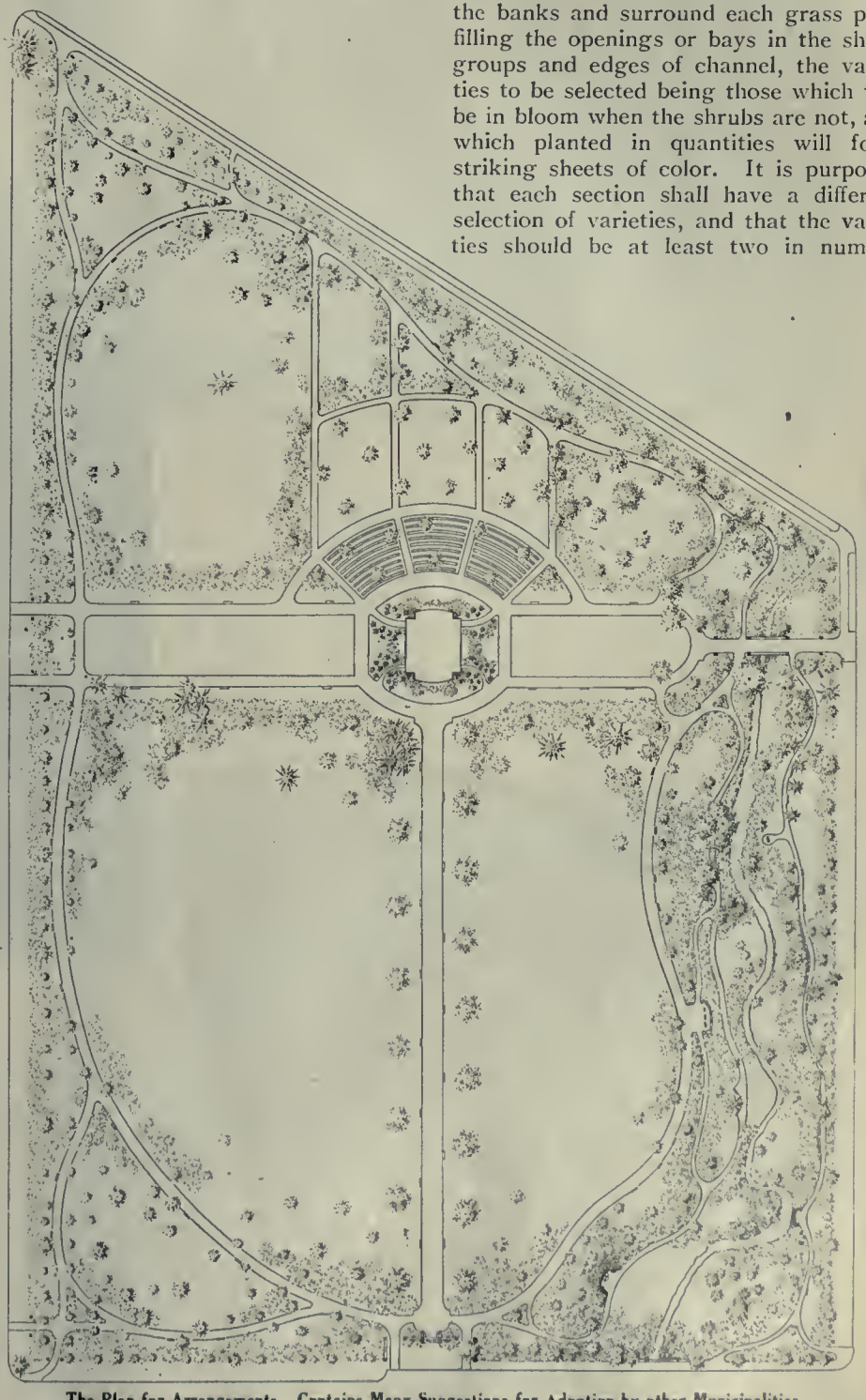
"In each division of the park a distribution and composition of color of bloom has been arranged and certain striking features made to dominate the division in season. For instance, in 'the flower mall', the two straight formal borders will be alive in the spring with the dotted rows of lilac blossoms against the yellow bloom of the taller irregular caragana in back and these will be faced with bridal wreath, the graceful branches of which later when in bloom will form long striking lines of showering white flowers.

"The 'great lawn', on the other hand, 'though containing large groups with different colored bloom for different months, is dominated by striking masses of the common snowball circulated through every portion of its borders, a sight which will enlist the public interest and regard for the beauty of the park and arouse a pride in it and a desire to visit it.

"Again, the upper lawn is dominated by hydrangeas planted as border edgings so that the heavy blossoms may droop over to the lawn surface, and there are the white and pink diervillas in the lawn to the northeast, and long strips of *Spiræa arguta* by the walk leading thereto.

"In the ravine, the existing growth and shoulders of the banks prevent long views, and the winding stream channel naturally divides the whole into many parts. These parts are quite defined by the planting groups indicated on planting plan and as far as possible open grass plots have been retained. The purpose of the planting has been to make a series of these parts, each having a different characteristic.

"After the trees and shrubs are matured and the park maintenance is on an established basis, the ravine will possess an opportunity for feature planting that will make it famous. I have in mind facing with perennials, biennials and annuals the irregular borders which cover the banks and surround each grass plot, filling the openings or bays in the shrub groups and edges of channel, the varieties to be selected being those which will be in bloom when the shrubs are not, and which planted in quantities will form striking sheets of color. It is purposed that each section shall have a different selection of varieties, and that the varieties should be at least two in number



The Plan for Arrangements Contains Many Suggestions for Adoption by other Municipalities
Shows a charming scheme involving little expense for construction because existing features are taken advantage of in an attractive way

flowering at the same time. For instance, in one section we may have helianthus forming a white sheet of flowers against the darker shade of shrub and tree foliage and before it agreeably contrasted the yellow of the golden glow. In the next section, we may have naught but the yellow and blue of the iris at the stream edges or crocuses coming up through the grass, while farther on we may be attracted by other wholesome irregular sheets of red contrasted with the white. And it is intended that this same scheme in variety shall be extended also to all the open spaces in the ravine and smaller lawn openings throughout the park, and that each section shall not be limited to one period of bloom, but rather that it be sufficiently continued to make the whole a veritable garden spot from the beginning to the end of the season and especially when the features on the larger lawn spaces are not the paramount attraction. The perennials used should be those requiring little attention after being once established and they should be of varieties generally wild in nature.

"The planting at the main entrance and at the pavilion is mostly evergreen in irregular formality, the dark greens contrasting strikingly with the gray of the architectural features and the bronze shades of the shrubs indicated. This planting must be done with the utmost care and the exercise of taste in the spacing of the plants, for the irregular formal grouping of evergreens is most effectual when properly executed. The arbor vitæa are specified as wild plants to be collected in the nearby woods and as far as possible low-branched, well-developed plants should be sought.

THE EDUCATIONAL PURPOSE

"The educational values of the plants are so many and so obvious that I will only mention a few of the more striking ones that appeal to me as relating to Barrie.

"Never in the history of this continent has so much been heard of the conservation of natural resources as now. We read daily the reports of tragic wastes that have been accomplished in the reckless destruction of trees and the resultant exorbitant prices of lumber, resultant expense with which municipalities have been penalized in getting water supplies, and the resultant exhaustion of permanent natural power for industry, the resultant amount of arid land and resultant impairment of natural transportation facilities, and the losses by floods and freshets. The facts are appalling and on their presentation there is a lack of public response which only bespeaks an inability to appreciate the truth.

"The great mass of this continental people never has had an appreciation of the value of natural growth with which the lands have been covered, and to-day it is regrettable that there is not a keener awakening, but it is not surprising when one stops to think how little recognition the practical study of the subject has been given by the public authorities. I believe that one of the greatest agencies for preparing the public mind for a sympathetic consideration of the subject is permitting the public to become more intimate with the subject matter, to know trees and natural growth, see the limitations and the time that nature requires to effect a worthy growth, and how easily the process is impaired by the ruthless hand of man. And there is no greater agency through which to bring these things to the sympathetic attention of the great body of the people in our cities and towns who wield so much power in legislation than in having rich masses of this natural growth as part of their daily environment, having it in their own entrustment and on their own public lands where all own, see and know the different varieties being reserved, and for which in this way they may develop an inherent sympathy and respect.

"There is also the scientific phase in the aid and encouragement to botanical research as a matter of local enlightment and contribution to the complete world records. Another educational value is in the demonstration of the individual, collective and relative uses of a considerable number of hardy varieties of trees and shrubs which are mostly native and can be adapted to use on home grounds, a demonstration which satisfies a prospective planter in selecting what he wants and in being sure of what he orders and that he gets what he does order. In this regard I wish to bring to your attention the advisability of having attached to each tree and shrub group an easily seen label bearing the botanical and common name of variety and the source of its nativity. This should prove a great stimulus to the private ornamentation of home grounds and the consequent beautification of the town. Moreover, an acquaintance with the native varieties will make them recognizable in woodlands whence they can be selected with little or no expense.

One of our Oldest Gardens

The views of the Perth garden which appear on this page and the next, take one back to the stirring times of 1812. The Matheson garden is but one of a number that might be mentioned in connection with the taste, skill and expenditure that have combined to make the town of Perth a reputable centre in things pertaining to advanced gardening. After the war of 1812, families of means came together to make Perth their home. The home included a garden. The garden included the hedge and the sun dial. It was a larger matter in those days to send to Philadelphia for seeds, plants and seeds than it is to-day. But wherever the best was to be had Perth sent for it, and set it forth to bloom and beautify.

One of the Oldest Gardens in Canada
The home of Miss Matheson, Perth, Ont.

There is an old lilac in Miss Matheson's garden that people climb to the roofs of surrounding buildings to get a view of in spring. It is a marvel of profusion and beauty. A Salem grape is another wonder in the garden. The perennials are many.

The Horticultural Society of Perth is one of the most active in Ontario, and probably no other county capital in the province of Ontario will surpass Perth in the cleanness of her streets, the attractiveness of her gardens, and the culture of her best citizens.

Send garden photos for publication.

The Best Narcissi for House Culture

C. M. Bezzo, Berlin, Ontario

HE would be bold indeed who would select from the family of Narcissus any one and say, "this is preferable to all others for house culture," although we may say that the paper white grandiflorus presents strong claims to that distinction. Its powerful and early blooming qualities, its ease of culture, its spotless purity of color and its sweet delicious fragrance, entitle it to consideration in this respect. The accompanying photograph was taken when the buds were just bursting into snowy whiteness and will convey a fair idea of how ten or a dozen would appear when all were in full bloom.

This flower may be grown in several different ways with almost equal success,—in pots of soil, in glasses of water, in sand and water and in a combination of soil, sand and water. We will consider the methods in the order in which we have named them.

GROWING IN POTS

To grow in pots, put one bulb in a four-inch pot, or three or four in a six-inch pot, merely covering the bulb with the soil. Any good rich loamy soil to which has been added sand in the proportion of sand one part, and soil three parts, should give good results. The best loam is that made from well rotted sods, although good garden soil will answer. If fertilizer is added, let it be old rotted manure from the cow stable made fine and mixed thoroughly with the soil, or pure bone flour in the proportion of three-quarters of a pint to the bushel of soil, mixing thoroughly.

Good drainage must be provided as all early spring flowering bulbs when grown in the house require plenty of water, but it must be given often and not allowed to stand and become stagnant and sour the soil. Good drainage will dispose of all surplus water. Where this is provided the soil will always be in good condition no matter how often the water is applied, provided that the plant receives plenty of sunlight and fresh air.

One reason why many persons fail in their efforts to grow early spring flowering bulbs indoors is because the soil is allowed to alternate between dry and wet. We must imitate as far as possible the conditions under which they bloom when in the open ground at which time the soil is always moist if not quite wet. But this frequent watering applies only to bulbs in a good growing condition. While the bulb is in the dormant state the soil must not be more than moist for if kept too wet the bulb is liable to rot.

After planting the bulbs, whether in soil, sand or water, they should be set away in a dark closet or corner of the cellar for two or three weeks until root formation has well started. This is not absolutely necessary but it disposes of them until top growth commences and they present a better appearance. The writer has brought them to the light all the way from one to six weeks with equal success.

A Leafy Bower in a Garden in Perth, Ontario

GLASSES OF WATER OR IN SAND

To grow paper white narcissus in water they may be placed singly in hyacinth glasses with the water just touching the base of the bulb, or in vessels partly filled with pebbles or sand with the base of the bulb resting on the sand and larger pebbles placed around the bulb to hold it in position. When grown in pebbles or sand, the bulbs may be placed so close that they almost touch each other. If glass is used for this purpose it should be coloured as root formation takes place much more readily when the light is not too strong. Always use rain water for growing narcissi in glasses of sand and allow the water to come merely above the ground. Change the water occasionally to keep it fresh.

The best way to grow this flower is in a

Flowers and Plants of Many Kinds Make This Garden a Place of Beauty and a Joy

combination of soil, sand and water. Place in the bottom of the vessel to be used, an inch or so of good rich loam or soil from the compost heap. The soil cannot be too rich, the only requirement being that the fertilizing element is thoroughly decomposed and ready to be taken up and converted into plant and bloom as soon as roots and soil come together. Over this, place clean sand to the desired depth upon which place the bulb, holding in position with pebbles. Allow the water to come up just high enough to be seen above the sand.

Paper white narcissus may be forced into bloom within four weeks from the time of planting. By starting to plant in September and planting at intervals during October and November, blooming plants may be had throughout the winter; or the last planting may be made in October and the blooming period regulated by the temperature of the room in which they grow. Heat will hasten the blooming period and, if the plants are coming on too quickly they may be retarded by placing in a cooler room.

Paper White Narcissus

About Peony Varieties

Rev. Andrew B. Baird, Winnipeg

There are half a dozen distinct varieties of peonies from which the hundreds of varieties now offered for sale are descended. These species differ in the shape of the leaf, in the smoothness or hairiness of the stem and in the color and shape of the flower.

The most distinct of these is the old-fashioned "piney" familiar to our childhood (*Pæonia officinalis*) with its foliage dark green above, light green beneath and with dark crimson flowers. This is a native of Switzerland. The others come from Siberia, Southern Europe, the Himlayas and the tree peony from China.

One of the features in which improvement has been most noticeable is fragrance. The old "officinalis" had a pungent and rather disagreeable odor. Now new varieties possess the greatest diversity of perfume — Marcelle Dessert and Madame Boulanger have the fragrance of the rose, Humei is cinnamon-scented, the Nymph has the fragrance of the pond lily, and others recall the heliotrope or the violet.

It is to be hoped that some local dealer will make a specialty of peonies and will carry a good stock of, say, at least a dozen of the best varieties. While the number of the advertised varieties runs up into the hundreds, it must be admitted that most of the differences are in the names rather than in the flowers. The range of colors is not great; it runs through white, pink, the various shades of red and purple, with two or three varieties more or less yellow. My own collection numbers some thirty plants of twenty varieties. The kinds that I would specially recommend will be given in a later issue of THE CANADIAN HORTICULTURIST.

Isolated Overgrown Shrubs Spoiling Fine Trees and Clogging Vistas of American Falls
In Queen Victoria Park at Niagara Falls. See page 198.

Hedges for Western Homes

S. A. Bedford, Manitoba Agricultural College

For the city or town, a hedge can with advantage be planted on each side of a walk or driveway leading to the residence. For this purpose a low-growing fine-sprayed plant should be used, as a coarse hedge would obstruct the view and look out of place.

The native snowberry, with its tiny blossom in summer and pretty white fruit in fall is excellent for the smallest sized hedges. It takes kindly to pruning and can be kept down to one or two feet in height. The native spirea, found all over the prairie, is another excellent plant for this purpose. It makes a hedge a little taller than the former and is covered with showy flowers in early summer. It stands pruning well and there is no difficulty in getting it to thicken out at the base. It is suitable for a hedge from three to four feet high and is well adapted for planting beside wide walks or narrow roads, leading to a residence.

In the city a hedge is often required for the purpose of a dividing line between two neighboring houses, where a fence would look unsightly. For this purpose it should be somewhat taller than the other two hedges I have mentioned, but still neat and compact. Nothing is better for this than the purple lilac. It stands pruning well, if a somewhat low hedge is required, and blooms freely if left unpruned. The foliage is a bright green right up to severe frosts, but pruning must be frequent if a shapely hedge is required.

For the purpose of a screen between the front and rear of a house, nothing is better than the caragana, if properly pruned, but this shrub is difficult to train unless taken very young. It should be planted in the hedge row when one year old and cut back severely at once. It will then start to branch close to the ground, and make a handsome hedge. Owing to the soft silver foliage and bright yellow blossoms, this is a very attractive hedge plant.

To serve the purpose of a fence parallel with the sidewalk, caragana, lilac or wild rose can be used. The latter requires very frequent pruning, otherwise it quickly beomes unsightly. For foliage effect our native red willow (Cornus) is excellent. It grows readily from cuttings and is a bright red color even in winter. For a contrast, our native buffalo berry is excellent. The foliage of this plant is a bright silver color and its small fruit nearly covers the branches in the autumn.

Dwarf Apples

Can dwarf apples be grown successfully in the Grimsby district?—A. R., Grimsby, Ont.

Dwarf apples can be grown as successfully about Grimsby as anywhere else in the province of Ontario. Dwarf pears are grown there quite extensively. The large nursery firms in the Niagara district offer dwarf apples and pears for sale.

Give trees in the nursery plenty of room if you want them to be stocky.

Lawn and Garden Hints for September

THE first frosts of fall may be expected about the middle of the month. Injury to plants may be prevented by a little foresight. When frosts threaten, water the garden thoroughly, as the dampness will help to keep the temperature from falling too low. Covering the plants with cloth or paper will also prevent injury from light frosts.

THE VEGETABLE GARDEN

When frosts come gather all remaining fruits from tomatoes and squash vines. Tomatoes will ripen in a dry place. Store squash where the temperature is cool and the atmosphere dry. When pulling squash leave a short portion of the vine attached to them.

Continue blanching celery with earth or boards. If for early use, be sure and have all the stalks in each bunch close together before banking up.

Sow winter varieties of radish at once. They may be harvested before freezing time and stored in sand in a cool cellar.

Spinach for early spring use may be sown now. Use the prickly or winter spinach for this purpose. Protect through winter with straw or other covering.

Plant Egyptian tree onions about the middle of the month. They will furnish the first onions next spring.

Late in the month give the rhubarb bed a good coating of manure. They require plenty of plant food.

Sow Chinese mustard and tuberous chervil. The former will furnish a salad plant for use late in fall. The latter is a herb for spring use.

Lettuce for forcing in the house may be sown now. Plants will be ready for use late in November.

NOTES ON FRUIT

After harvesting raspberries and blackberries, the old canes may be removed, but the best practice is to leave them until spring so that they will help to hold the snows of winter for the protection of the new growth.

Currants and gooseberries may be pruned any time after the leaves fall. New plants may be set out in autumn. These fruits may be propagated by means of cuttings taken in fall and stored.

Black-caps and purple raspberries may be propagated this month by means of tip-layering. Place the tips of the canes under the soil and fasten them there by firming with the feet or by placing on them a clod of earth. They will root and be ready for transplanting next spring.

Remove the webs of fall webworm by cutting and destroying the branches upon which they have been made, or by burning on the tree with a torch.

THE FLOWER GARDEN

Dig the bulbs of tigridias and garden caladiums early in autumn. Dry for a few days and then store in a temperature of about 50 degrees.

Spring flowering bulbs may be planted towards the end of the month. Plant in beds that are well prepared and enriched.

Gather the ripened seeds of any flowers that you wish to reproduce. Dry them slowly for a few days then store in a cool dry place.

House plants that have been growing outdoors should be taken inside when the temperature of the house is about the same as that outdoors. Do not put in pots that are too large and avoid watering too freely.

Perennials that were started from seed early in spring may be planted in the border late this month or early in September. Late perennials may be divided and transplanted.

FLOWERS INDOORS

Some bulbs for house culture should be planted now. In a six-inch pot put three tulips, hyacinths or daffodils; or put six crocuses or snowdrops. Place the crowns of the tulips and daffodils about one inch below the surface of the soil. Hyacinths may project above the surface. Place plenty of drainage material in the pots. Soak with water and then store in a cool dry place.

Seeds of sweet alyssum may be started in pots or boxes any time in fall. Why not experiment with the growing of other annuals indoors and tell your experience through the columns of THE CANADIAN HORTICULTURIST?

If you have a conservatory or greenhouse, repair the benches and heating apparatus this month. Pot Bermuda lilies and freesias. Sow seeds of calceolaria and cineraria. Sow a few seeds of indoor sweet peas and of stocks. Many other things may be grown for winter bloom. Send questions to the question and answer department of THE CANADIAN HORTICULTURIST.

Asparagus Pests

James F. Nicholson, Ottawa

When old asparagus beds are badly attacked by rust, the best way is to destroy or break them up and plant in a fresh location. The disease may be held in check by frequent sprayings with Bordeaux mixture or by cutting the affected parts off and burning them. Young plants from seeds, kept well fertilized, will

Spotty Planting and Clogged Vistas in Queen Victoria Park
Poor specimens of trees obstructing an otherwise fine lawn. See page 198

Wretched Planting in New Portion of Queen Victoria Park at Niagara Falls
Small, bare, poorly planted beds which are not only in bad taste but difficult to care for

withstand any disease or fungus better than old beds which have been neglected.

For wire worms at roots, dress the bed with salt and place pieces of carrots and potatoes below ground to attract them.

The asparagus beetle injures the tender shoots and make them useless for market. These insects may be held in check by poultry turned into the beds, or cut down all volunteer growth in early spring so that the beetles will lay their eggs on new shoots which are cut every few days before the eggs are hatched. Another remedy for the larvæ is air-slaked lime, dusted on the plants in the early morning while the dew is on, which will destroy all grubs with which it comes in contact.

After the cutting season is over, burn the tops off the bed as it is the surest way to burn all weed seeds, insects and eggs which may have been deposited during growth.

The Potato Harvest

L. H. Newman, Sec., Canadian Seed Growers' Association

The best time to dig potatoes is as soon as the tops have died, except in cases where disease has gained headway. Where such is the case it is considered advisable to leave the potatoes in the ground in order to give them an opportunity to show any infection before storing. A potato digger should be available where any considerable area of this crop is to be harvested. Several of these machines are now on the market and may be purchased at a comparatively low price. One of the best machines is that known as the "Ellard" digger, made by W. J. Ellard, Ottawa, and costing $70.00.

STORING

If stored, potatoes should be placed in a cool, dry, well-ventilated place. They should be brought from the field in a clean, dry condition, with all "rotten" or "scabby" potatoes removed. Mr. Macoun of the Central Experimental Farm, Ottawa, recommends that a special bin be constructed in such a way as to facilitate the greatest circulation of air throughout the pile. This may be done by nailing slats a little apart on upright pieces about six inches from the walls. The floor of the bin should also be raised and constructed of narrow boards with one inch space between them.

MARKETING

As a rule it is more profitable to market potatoes as soon as harvested than to hold them. Circumstances and prices alone can determine the best course to follow in connection with this matter. Where a community develops a name as a large producer of high class potatoes of one type or variety buyers are soon attracted to it and offer remunerative prices. Very often, however, the growers are able to dispose of their product themselves to best advantage. The demand for high class seed every spring opens up an outlet for large quantities of potatoes to be used for seed purposes. This is a trade which requires special development yet is one which presents splendid opportunities for the right men.

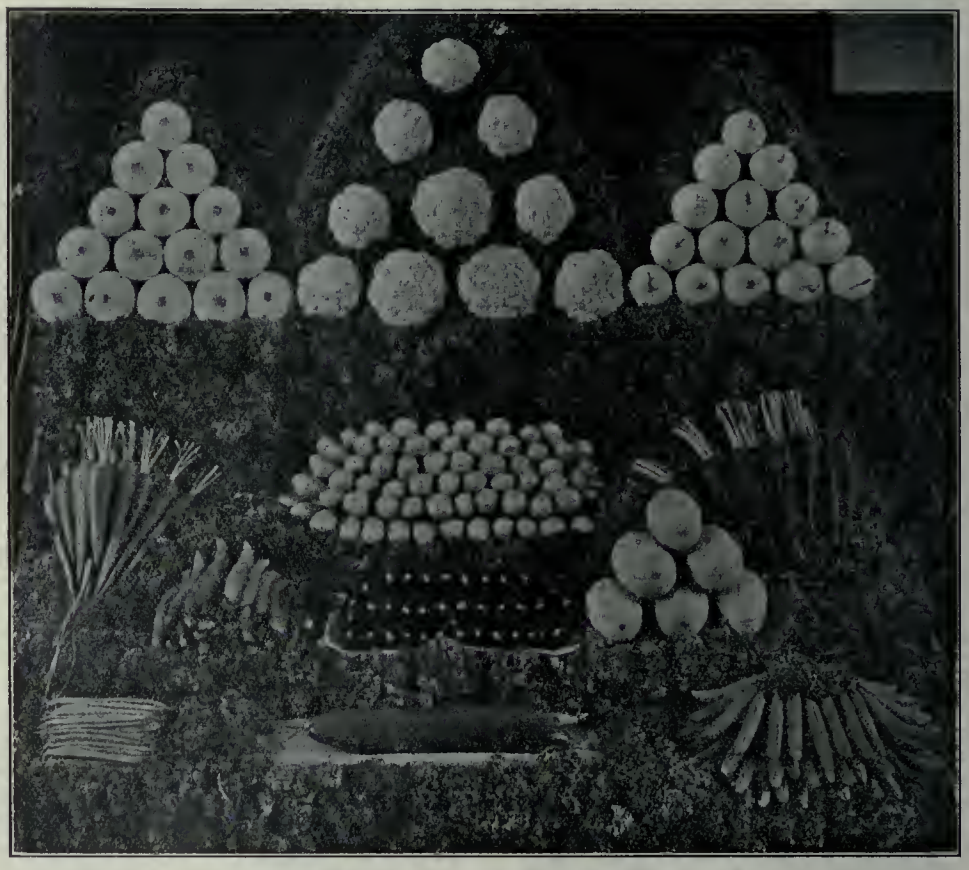
Growing Ginseng from Seed

Wm. Gilgore, Peterboro, Ont.

Ginseng is propagated by seed and these do not germinate for eighteen months after they are ripe. Seeds planted in the autumn of 1908 do not germinate until the spring of 1910. If they are allowed to become dry they lose their vitality. In the early years of ginseng growing, it was the custom to plant the seeds in the ground as soon as they were ripe and some successful growers follow the custom yet; they say that it is the natural plan. In its wild state, probably not five per cent. of the seeds ever make a plant.

Nature produces an abundance of seed. If the seeds are planted immediately after becoming ripe, they must stay a long time in the ground before sprouting. To retain the moisture and keep the ground cool, we must put on a heavy mulch of leaves. This mulch makes a fine harbor for field mice and moles. In the meantime a large percentage may rot from wetting and drying out, others will lose their vitality by becoming too dry, and others will be eaten by insects and grubs. By the use of intelligent methods, we can aid nature whenever possible to prevent this waste. I am convinced that we can obtain a greater number of plants from the same quantity of seed by storing them.

I procure a quantity of sharp sand, which I run through a fine screen to remove any gravel that it may contain. I sow the seeds in flower pots. After separating the seeds from the pulp, I put an inch of sand in the bottom of the pot, and on this spread a layer of seed, then a half inch of sand, then a layer of seed and so on until the pot is full. When the pots are all filled, put them in a box with holes in the bottom for draining. Set this box in a hole dug in a well-drained spot in the garden. The top of the box should be six inches below the surface. Fill up with sand on top. Above this lay boards and cover all with eight inches of earth. The following September, run the contents of the pots through a fine screen. The seed comes out as fresh and bright as when first put in. Then plant them, and next summer the result will be a fine crop of seedlings.



An Excellent Arrangement for Displaying a Collection of Vegetables

At Canadian exhibitions it is seldom that one sees a collection of vegetables well arranged. The various kinds and varieties usually are shown in a haphazard, inartistic manner. The illustration shows the Gold Medal exhibit at a Horticultural show that was held in London, England, in July, by *The Garden*. The arrangement, or a modification of it, could be adopted with advantage in this country.

For ordinary purposes, asparagus roots should be planted about six inches deep. The deeper they are planted the later they will appear above ground in spring.

QUESTION AND ANSWER DEPARTMENT

Beetle on Cherry Trees

I am sending for identification a specimen of a beetle that has been attacking cherry and peach trees and defoliating them.—E. W., Kings Co., N.S.

The specimen sent for identification is a leaf-eating beetle, *Galerucella cavicollis*, belonging to the same family as the potato and cucumber beetles, etc. This insect is about one-quarter of an inch long, oval in shape, brownish-red in color, shining but not highly polished. It feeds usually on the foliage of wild cherry and is only occasionally found on the cultivated varieties. Some other members of this genus are very injurious to the foliage of various fruit-trees. Spraying with Paris green or arsenate of lead would no doubt destroy the insects.—Prof. Charles J. S. Bethune, Ontario Agricultural College.

Winter Injury to Peach Trees

What is the matter with some of our peach trees? They were rather severely damaged by winter killing of wood and in May we cut back very hard. They have made large, new growth, but part of the trees have a yellowish leaf, whilst other parts of same tree are normal dark green. In summer of 1908, no yellow leaves appeared, after a very mild winter. Slight appearance of yellow leaf appeared in 1907 after a hard winter. The soil is a gravelly one, and trees are three and four years old. The soil has not been cover-cropped. The snow lies very badly on it. One or two other growers have the same thing, but only in light soils and after winter injury. The trees have all made from three to five feet of strong new wood.—L. Bros., Nahun, B.C.

It is impossible to say with certainty what is causing the yellowing of the leaves of your peach trees without examination, but it would appear that the yellowing of the leaves is an indication of the winter injury which you refer to and which in some cases was sufficiently bad to cause the death of the limbs. Sometimes after winter injury the tissues seem to become disorganized and the branch remains unhealthy for some time without actually dying.—W. T. Macoun, Central Experimental Farm, Ottawa.

The Grimsby District

1. Is Grimsby a good fruit-growing district?

2. What is the average yield per tree of peaches, plums and pears?

3. Can $1,200 yearly be realized from a fruit farm consisting of 200 peach trees, 150 plum trees, 40 pear trees, 500 grape vines and one quarter of an acre of strawberries?

4. What is the price per acre for land in Grimsby?—B.H.E., Toronto.

1. While there are some districts just as good as Grimsby for fruit growing, there are none better, except for apples. No district in Canada produces a greater number of kinds and varieties of fruits and is more free from frosts.

2. The average yield per tree is a hard question to answer, as there are so many different varieties and they do not all bear every year. It is presumed that "B. H. E." refers to full-grown trees. We have known plum trees in that district to have from twenty-five to forty baskets on in one year and so with pears, and peaches have been known to yield fifteen to twenty-five baskets per tree in one year, but not every year in any of the cases. The average for one year with another, taking different varieties into consideration, is about six baskets per tree for peaches, plums and pears.

3. A fruit farm containing the number of trees mentioned would only be about four acres. You could not average $1200 a year from it. If the trees all had an average crop on them with high prices, it might be realized, but not every year.

4. Land in the Grimsby district is very high, good land selling from $500 an acre and more. We heard of one grower who refused $1500 an acre this spring. Orchards were sold this season for over $1,000 an acre.

Fumigation with Cyanide

What is the best method of using cyanide of potassium in greenhouses?—M. A. R., Halifax.

Fumigation with cyanide of potassium is one of the most effective methods of destroying the white-fly, but it should be used with the greatest caution as the fumes are fatal to all animal life. Every precaution should be taken against the possibility of anyone entering the house where the gas is being used until it has been dissipated. The house should be tight and so arranged that the ventilators can be raised without entering the house. The gas is produced by the action of sulphuric acid upon cyanide of potassium in the presence of water. One ounce chemically pure potassium cyanide (98 per cent.) one and one-quarter ounces of commercial sulphuric acid and two ounces of water can be used for each 1,000 cubic feet of space.

At intervals of from 30 to 40 feet place on the walk a two-gallon earthen jar; thus, for a house 100 feet long, three jars would be required. In each jar place a proportionate part of the water required for the house and then carefully add an equal amount of sulphuric acid. (Care should be taken not to allow any of the acid to come in contact with the clothing). The amount of cyanide for each jar should be weighed out and placed in paper bags. Screw-eyes are then fastened in the wood work directly over each jar and through these stout cords are run to the end of the house near the door where they are fastened. To the ends over the jars tie the bags of cyanide so that on the ends of the strings at the doors being released they will drop into the jars. When all is ready close the ventilators; pass to the end of the house and carefully lower the bags into the jars and close the doors. After 25 minutes open the house for at least half an hour before entering.—Tennyson D. Jarvis, Ontario Agricultural College.

English Lavender

Early in the spring, I planted seeds of English lavender. They were very slow in germinating. In June, I transplanted the small plants to a larger box. They are not more than one and one half inches high now (July 23.) I have transplanted them again to the open ground. Can you prescribe for them?—Mrs. W. H. J., Madoc, Ont.

The English lavender does not propagate very readily from seeds. Seedling plants are very slow growing. The plants will probably do better now that you have planted them in the open ground. If you have several of them, it might be as well to put one or two, singly, in three- or four-inch pots, in good potting soil. The pots should then be planted or sunk in the garden and the plants kept well watered. The plants could then be lifted out and taken into the window in the fall.

Drying Ginseng Roots

Is it a difficult job to dry ginseng roots for market?—W. N., Dartmouth, N.S.

I will give some facts from my personal experience. Last autumn I dug a quantity of roots. When they were washed, I made a bench of boards on the south side of the house. On this bench I spread out the roots. They were exposed to the full sunshine from nine o'clock in the morning until five o'clock in the afternoon. They received this treatment for a week when they were taken inside and spread on a floor upstairs where they got the draught of two open windows for about ten days more, when they were perfectly dry. Ten pounds were shipped to New York and the price was remitted in about a month from the time that they were dug. This part of the work can be done by women; in fact, they are more careful than men. —Wm. Gilgore, Peterboro, Ont.

The Canadian Horticulturist

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PETERBORO, ONTARIO

The Only Horticultural Magazine in the Dominion

OFFICIAL ORGAN OF BRITISH COLUMBIA, ONTARIO QUEBEC, NEW BRUNSWICK AND PRINCE EDWARD ISLAND FRUIT GROWERS' ASSOCIATIONS

H. BRONSON COWAN, Managing Director

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6. Articles and Illustrations for publication will be thankfully received by the editor.

CIRCULATION STATEMENT.

Since the subscription price of The Canadian Horticulturist was reduced from $1.00 to 60 cents a year, the circulation has grown rapidly. The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with Dec., 1908. The figures given are exclusive of samples and spoiled copies, and of papers sent to advertisers. Some months, including the sample copies, from 10,000 to 12,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruit, flowers or vegetables.

January, 1908	7,650	January, 1909	9,456
February, 1908	7,824	February, 1909	9,310
March, 1908	8,056	March, 1909	9,405
April, 1908	8,250	April, 1909	9,482
May, 1908	8,573	May, 1909	9,172
June, 1908	8,840	June, 1909	8,891
July, 1908	9,015	July, 1909	8,447
August, 1908	9,070	August, 1909	8,570
September, 1908	9,121		
October, 1908	9,215		
November, 1908	9,323		
December, 1908	9,400		
Total for the year	104,337		

Average each issue in 1907, 6,627
Average each issue in 1908, 8,695
(Increased circulation in one year 2,068)

Sworn detailed statements will be mailed upon application.

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We want the readers of The Canadian Horticulturist to feel that they can deal with our advertisers with our assurance of the advertisers' reliability. We try to admit to our columns only the most reliable advertisers. Should any subscriber, therefore, have good cause to be dissatisfied with the treatment he receives from any of our advertisers, we will look into the matter and investigate the circumstances fully. Should we find reason, even in the slightest degree, we will discontinue immediately the publication of their advertisements in The Horticulturist. Should the circumstances warrant, we will expose them through the columns of the paper. Thus, we will not only protect our readers, but our reputable advertisers as well. All that is necessary to entitle you to the benefits of this Protective Policy is that you include in all your letters to advertisers the words, "I saw your ad. in The Canadian Horticulturist." Complaints should be made to us as soon as possible after reason for dissatisfaction has been found.

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THE CANADIAN HORTICULTURIST,
PETERBORO, ONTARIO.

EDITORIAL

QUEEN VICTORIA PARK

Queen Victoria Park at Niagara Falls is visited annually by thousands and thousands of people and should present an example of the very best taste in the treatment of a great natural piece of scenery. The treatment that it is receiving is open to considerable objection as has been pointed out in these columns many times. A representative of THE CANADIAN HORTICULTURIST visited the park recently to observe at first hand present conditions and to take some photographs. Some of the latter are published on pages 194 and 195.

The park contains about 175 acres lying along the shore of the Niagara River and extending from near the upper steel arch bridge to a considerable distance above the Falls. It may be roughly divided into two parts, namely, a steep wooded portion and a fairly level plateau extending from the bluff to the river's edge. The bluff is now nearly all clothed with a natural growth, but the treatment of the more level portion is wholly artificial, excepting around the Dufferin Islands which are rather rugged and unkempt.

In the older portion of the park much of the planting has outlived its usefulness, at least in its present location. It should be, especially in the case of the older and larger shrubs which are already growing bare and unsightly at the base, gathered into larger clumps and faced down with finer stuff. There are several fine vistas of the Falls which are clogged with these over-grown shrubs and with poor trees, and there are many fine trees which will eventually lose their lower limbs and much of their beauty unless the interfering shrubbery and poor trees are removed from their vicinity. Shrubs when properly trimmed do not become overgrown, but the thinning should not be neglected. There are even dead trees standing as a monument to someone's lack of neatness. The judicious use of an axe would help out here considerably.

It is in the upper portion of the park that the greatest chance for improvement exists since this part is hardly at all developed. Here there is plenty of playground room and here it is that provision should be made for the playing of tennis, cricket and especially baseball, instead of allowing these sports to occupy the fine lawns in the older portion of the park.

Here also lies one of the greatest opportunities for the exercise of the art of landscape gardening that exists on the American continent to-day and yet here we find such examples of gardening as, for instance, three golden syringas (*Philadelphus coronarius aurea*) growing in a heart-shaped bed. And such examples of taste (?) are dotted indiscriminately here and there over the lawns. It would be as interesting to know how many people carry home ideas from these wretched beds as it is dreadful to contemplate the result of their trying to reproduce them at home.

Another practice which is open to objection is the use of gaudy annuals and dwarf evergreens in the same beds. The evergreen material used as bedding is in itself beautiful and the idea is one of the happiest thoughts in the whole park, but annual stuff should not be used alongside of it because annuals are nearly always exotics and entirely foreign to our native flora while evergreens are not only native but characteristic. If something bright must be used along with the evergreens then let it be perennial native stuff which will not only look better and last longer but will also provide an excellent example for visitors to the park.

This park has been in existence for over twenty years but it has none of the finished appearance which such an old park should have. The construction of the power plants is responsible for some of this, but does not furnish a sufficient excuse. It looks rather as if the park were periodically overturned by changing superintendents and as if their views of what such a park should be were colored by their political faith. There evidently has been a vast sum of money expended in providing "jobs," but job holders are notoriously poor park builders.

The salvation of this or any other park under public ownership lies in an administration entirely removed from politics. At the present time, when there are scores of trained men available who not only have a thorough botanical and horticultural education but also have the principles of good design inculcated in them, as well as a knowledge of practical and economical landscape construction and maintenance, there is no longer any excuse for placing such a treasure as Queen Victoria Park into the hands of an engineer, a postmaster or a politician. Until this idea dawns upon those in authority a good share of the annual appropriation might as well be thrown over the Falls with an equal expectation of attaining the end for which it was appropriated and for which the people have a right to look

MORE EDUCATION NEEDED

We are informed by the railway station agent at the town of Simcoe, Ontario, that 20,000 apple trees passed through his hands for the farmers of the county of Norfolk in the spring of 1909. This is but one evidence of the many rapid strides that are being made in the development of the fruit industry in Ontario. Along the north shore of Lake Ontario, in the Georgian Bay district, in the Lake Huron section, along Lake Erie, and in the middle counties, as well as in the Niagara peninsula, more spraying is being done every year, more orchards are being cultivated, more trees are being pruned, and more inquiries are being made by growers in these districts for help in the destruction of insects and fungous diseases in the orchard. The rapid development of the industry and the great desire for knowledge that is being expressed, shows the need for more education.

The practice and the theory of horticulture in all its branches is demonstrated and taught at the Ontario Agricultural College, Guelph. This is a provincial institution, and the government, by generous appropriations, makes it possible for a farmer's boy to receive a splendid education at little expense. The professor of horticulture at the present time is making a business trip through California, Oregon, Washington, British Columbia, and our own Northwest Territories, looking for information along fruit lines that will be useful to the students in horticulture at the college.

The college is receiving more and more inquiries each year in regard to spraying, the life history of insects and the remedies for their destruction, and the best methods to destroy fungous diseases, and more and more each year fruit growers are sending their sons to the college to spend at least two winters, studying these subjects that will be useful to the boy on the fruit farm. The wonder is that the college is not crowded with students who are interested in orchard management. The orchard has become, more and more, an important ad-

junct, and in special fruit sections men are making a good living out of the orchard alone. We would call attention therefore, to the courses that are being offered at the Ontario Agricultural College, as outlined on page 203, of this issue, and we trust that when the opening day, September 14, comes round, there will be hundreds of young men who are interested in fruit enroll themselves as students at that worthy institution.

INCREASED GRANT NECESSARY

The new Ontario Act governing the Horticultural Societies of the province has been in operation now for about three years and is giving general satisfaction. It is working out in one direction, however, in a manner that may prove disastrous to a considerable numebr of sócieties unless steps are taken immediately to improve the situation. The government grant made to the societies under the present Act is distributed to them in part in proportion to their membership. This forces societies in order that they may hold their own to increase their membership. Those societies that do not increase their membership suffer decreases in their government grants. As a result of this clause in the Act, the societies have been putting forth every effort to increase their membership, with the result that during the past two years, their membership has been increased by over 50 per cent. As the total government grant to all the societies has not been increased, the societies are being forced to carry a greatly increased membership on grants, that on the average are no larger than they were several years ago.

The burden is becoming so great that a number of the societies are finding it a hard struggle to continue their work. The government grant to the Horticultural Societies of the province should be increased by at least $3,000. There is no organization in the province that is doing more beneficial and educational work in proportion to the assistance received, than the Horticultural Societies. The societies should take this matter up energetically and leave no stone untumed to show the provincial government how absolutely essential it is that the provincial government grant shall be increased to a sum commensurate with the work that they are doing.

AN UNNECESSARY BURDEN

There is a feature of the fruit commission business in Toronto that should be corrected. Commission merchants in that city demand cartago fees of one cent a basket and three cents a crate upon all fruit shipped to them for sale, in addition to a commission of ten per cent. for selling. The growers of the Niagara peninsula feel that the cartago charges are an imposition. Expressions of this feeling from some of the growers appear elsewhere in this issue. Toronto commission men appear to be alone in requiring a fee of more than 10 per cent. Montreal does not impose it, nor other cities, so far as we know.

It is claimed that seventy-five per cent. of the fruit that is sold by commission merchants is hauled away by the buyers, but the commission men offer no rebate to growers on this account; they keep the money that is paid for work that in many cases is not done. Even when the fruit is delivered by the commission men, it is not reasonable to make the growers pay for it. That is the commission man's affair and not the grower's. The latter's share of cartage operations is done at his end of the line. It would be just as reasonable for the retail dealers to impose cartage charges on the commission men as it is for the commission men to charge the growers. In other lines of business such a thing would not be thought of. The commission merchants of Toronto should drop this charge.

The article and diagrams that are published in this issue under the heading, "A Model Park for Barrie, Ontario," contain much information for park builders and suggest means whereby many of our cities and towns may be made more beautiful. More parks and better parks are necessary. They are valuable assets to a municipality. In all of our towns there is more or less waste ground that could be turned into parks and pleasure places. It is to be hoped that Barrie has initiated a movement towards a new standard which other towns will adopt.

PUBLISHERS' DESK

That the virtue of modesty is a good one, cannot be denied; that its adoption by the publishers of THE CANADIAN HORTICULTURIST is not in the interests of fruit growers and of the publication is the opinion of one of our friends in British Columbia, as the following letter intimates:

"Your premium offers are varied, good and attractive, but you don't try quite enough to convince the people that THE CANADIAN HORTICULTURIST is necessary for them. You let the excellence of the paper speak for it—a sure way but slow. Tell the fruit growers from time to time that you alone stand for the development of Canadian orcharding, improvement of transportation, recognition of merits of Canadian fruit in the markets of the world,—that you are "it" and are indispensible to every one, amateur or professional, who grows fruit in Canada. Intimate to British Columbia men that you are ever ready to help them in any or all of their peculiar problems. Remind them that you are the organ of their provincial fruit growers' association. In short, your paper is deserving genuinely of some "hot air,"—just a little more of the tactics of your American contemporaries who allure Canadians to subscribe. Not that the American journals should not be read by Canadians. One should learn whatever he can, and the Americans can teach in many things; but, this Canadian publication should be in every Canadian's hands.

"There are enough fruit men in Canada to make your mailing list as large as at present. Of course, you have other classes of readers to interest, but my remarks apply only to fruit growers. When I look over some of your fine recent issues, I think of what many Canadians have missed by not reading them. Your paper has improved 200 per cent. as a national fruit publication in the last two years, and I'll bet that right now there are thousands of fruit men in our country who, because they don't know, consider it just one of these Canadian papers asking support solely because it is Canadian. They have not been convinced that every number contains something vital to their business interests, some things that American papers purposely don't give them."

We appreciate the words and advice of our correspondent. It has been our aim to make THE CANADIAN HORTICULTURIST national in character, and therefore equally valuable to our readers in all parts of Canada. Besides being the official organ of most of our provincial fruit growers' associations, THE CANADIAN HORTICULTURIST is also the personal organ of every horticulturist in our great Dominion who desires to avail himself of the opportunities that it affords for acquiring and disseminating horticultural knowledge and wisdom.

The illustration on the front cover of this issue shows a part of the beautiful grounds at "Dunain," the home of Mr. Barlow Cumberland, Port Hope, Ont. The hedge is of cedar and the arched gateway leads to the kitchen garden. Scenes similar to this one are wanted from all parts of Canada.

Pollenizing Plum Blossoms

Wm. H. Moore, Scotch Lake, N.B.

Several years ago, on the old homestead, a sort of superstitious information was given by a neighbor that if wood ashes were thrown upon plum trees when in full bloom they would insure a crop of plums for that year. The trick was performed and a good crop of plums resulted. This was with some old-fashioned red plums. The farm is now under a different management and this spring I gave the occupants the same information. They threw ashes upon the blossoms as high as they could reach. The result is that plums set where the ashes were applied, and that very few set above where the ashes reached.

From these two experiments, it is apparent that this method of treatment is of great benefit if one wishes to secure a crop of plums. I have made some enquiry among local fruit growers but not one had heard of this wrinkle nor could any person be found who could even surmise how it could possibly be of any use. Later, I made a short study of "Plums and Plum Culture," by Waugh, and have concluded from the information gleaned from that book, that the mystery is about solved.

It is found, in plum growing, that it is well to have planted near each other different varieties of plum trees to better ensure the setting of the fruit, as it may happen that the pollen may not be ready for distribution, that is, the anthers may not be ready to set the pollen free at the same time that the stigma is ready for pollination. By throwing the fine ashes against the blossoms, the anthers may be broken and the pollen distributed upon the stigma or made ready so that when the insects visiting the flowers are gathering the nectar they too may greatly aid in pollenizing the flowers. This plan will work with varieties having the stigma ready before the pollen is, but should some have the pollen ready first (if there are such) then this method would be of no use. Perhaps some of the plum culturists who may chance to read this may be able to throw more light upon the subject.

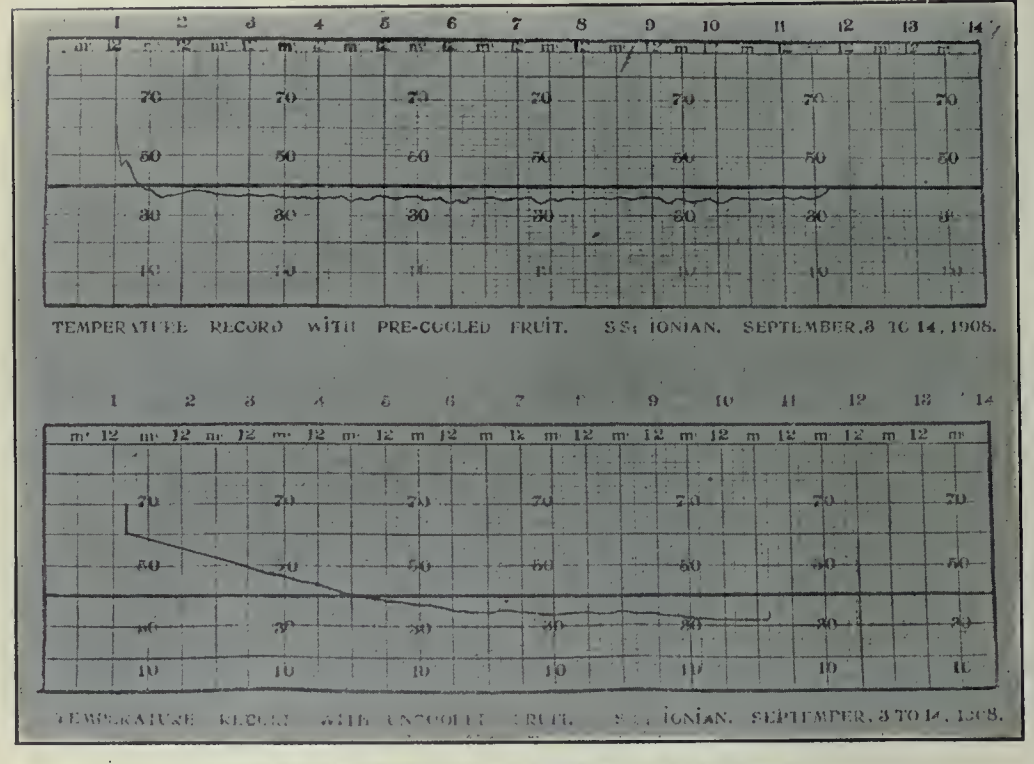
The first plum trees set out on my farm were set this spring. The blossoms were well treated to a liberal supply of ashes and there are quite a number of plums set and not a single pith or blight. The varieties are Moore's Arctic and Lombard.

[NOTE.—It has been demonstrated by experiment (Waugh) that plum pollen is not transmitted through the air by the wind in sufficient quantities to insure cross-pollination. A similar conclusion is drawn from experiments conducted in apple orchards by the Oregon Experiment Station. The practice of throwing ashes on trees may increase the distribution, but it is scarcely practicable on large plantations. The information given by Mr. Moore is interesting. Expressions of opinion regarding it from others will be welcomed for publication.—Editor.]

Items of interest from all the provinces are wanted for publication.

The Pre-cooling of Fruit for Shipment

EXPERIMENTS conducted by the departments of agriculture of Canada and the United States show conclusively that fruit should be cooled before shipment. The fruit should be placed in the storage room or in refrigerator cars with the least possible delay after picking. Unless this is done, the full benefits of cold storage facilities on board ship are not secured. At the last convention of the Ontario Fruit Growers' Association, Mr. J. A. Ruddick, Dairy and Cold Storage Commissioner, Ottawa, directed attention to the importance of this point in an address on our export trade in early apples and tender fruits. In the course of the address, he said, "In nine cases out of ten when fruit reaches its destination in bad condition, it is because it had not been delivered to the transportation companies in fit condition to carry safely." On being asked if apples should be placed in cold storage before being packed, Mr. Ruddick said, "If you pack warm apples in barrels and put them in cold storage, it takes a longer time to cool them down than it would if they were in open packages. Cold fruit does not bruise as readily in packing as warm fruit does, and that is also a consideration."



Diagrams that Illustrate the Value of Cooling Fruit Before Shipment

In his evidence before the Select Standing Committee on Agriculture and Colonization at Ottawa, Mr. Ruddick further emphasized the importance of having the fruit properly cooled before it is placed on board the steamer. He exhibited illustrations of two thermograph records (as shown on this page) of shipments made on the S.S. "Ionian" last September.

In pointing out the lessons to be learned from these records, Mr. Ruddick said, "The temperature of the room in which the fruit was cooled before being put into the chambers, went right down to 36 degrees and ran fairly even throughout the voyage. In the other, the temperature started at 60 degrees, and it was four days before it was down to 40 degrees. The heat in the fruit had to be removed, and the heat which was generated while the fruit was ripening at that rapid rate had also to be removed.

"The refrigeration of fruit is a very different thing to the refrigeration of butter, where you can put the temperature down as low as you like; but if you put on sufficient refrigeration to put the temperature down quickly you would have the cold air coming into the chamber far below freezing point, consequently freezing the fruit which it immediately came into contact with. The engineer has, therefore, that difficulty to contend with, that he cannot use the full power of his refrigerating machine in a chamber used for chilling fruit. He is aware of the critical temperature, about 32 degrees, and that it is not safe to have cold air coming in at a lower point. If he were trying to chill a chamber filled with butter or meats or any frozen goods, it would not make any difference; he could then put on the full power of his machine. That is why it is so difficult to manage the chilling of fruit. This shows the importance of having the fruit cooled before it is placed in a chamber like the cold storage chamber on the steamship."

A study of the foregoing remarks and of the accompanying illustrations should convince fruit growers and shippers. No refrigerator car yet constructed can give quick refrigeration and no cold storage chamber on a ship can do so without injuring the fruit. The Dominion Department of Agriculture intends to continue its assistance to fruit growers in this matter and in affording facilities for the ocean carriage o ffruit in small quantities. The announcement appears in the August issue of THE CANADIAN HORTICULTURIST.

Cold Storage For Apples.—Attention is directed to the space facing our first reading page, taken by ad. of the New Brunswick Cold Storage Company, Limited, St. John, N.B. There are few businesses which may be expected to appeal so readily to the apple exporter. Space should be arranged for well in advance. These people can take only 50,000 barrels, and that is a small part of a good crop. Stock should be sent direct from the orchard. Arrange exactly how you want your goods stored, whether by season or the month. Give specific directions as to your stowage, whether on heads, face down, or bilge, or on bottom with heads removed. Parties who have tested the St. John house have only good words for the facilities offered, and good foremen can easily get plenty of help, with one or two years' experience as packers, resident in the winter port. Parties shipping boxed apples will find mills turning out an excellent article right at the storage doors in St. John. As shipments from this house may be routed direct to London, Liverpool, Glasgow, Manchester, Belfast, Bristol, Havre, Rotterdam, Hamburg or Capetown, little is left to be desired as to accommodations. All the Montreal lines run to St. John in winter.

Ontario Horticultural Exhibition

P. W. Hodgetts, Secretary, Toronto

The Ontaria Horticultural Exhibition will be held this year in the St. Lawrence Market Arena, Toronto, November 9 to 13. An entire change will be made in the interior plan of decorations and the placing of the various products which go to make up this magnificent show. Present plans are to have a central aisle leading from the main door right through to the rear of the hall, making the arches overhead gradually smaller so as to apparently increase the length of this aisle.

Among special exhibits will be single specimens of our four leading varieties of apples, namely, the Spy, Baldwin, Greening and King, for which the big prize of $10.00 will be offered in each case. These have been donated by prominent men in the horticultural world in Ontario.

Special arrangements are also being made for a large exhibit of all kinds of orchard implements, spraying mixtures, etc., both from the United States and Canada. THE CANADIAN HORTICULTURIST has kindly donated a full-page advertisement which is to be divided into two prizes for the best new inventions for orchard and for garden use.

With a more favorable year the present season than last, the commercial florists expect to put up one of the best exhibits of 'mums, roses and other flowers that has ever been seen in Toronto. The floral arches will be a special feature of their creation. Altogether the show promises already to exceed in beauty and also in utility any of the previous exhibitions. The prize lists are now printed and copies may be obtained from the secretary, Parliament Buildings, Toronto.

Photographs of fruit harvesting scenes are wanted for use in THE CANADIAN HORTICULTURIST.

The engravings on pages 192 and 193 were loaned from the report of the Horticultural Societies of Ontario, by Mr. J. Lockie Wilson. The photographs from which they were made were furnished by Rev A. H. Scott, Perth, Ont.

To harvest the fruit crop easily and rapidly, it is necessary to have strong ladders. It is bad policy to use clumsy ladders, such as usually are made at home. A ladder that will give satisfaction is the "Perfect" fruit step ladder. Read the advertisement of the Stratford M'fg Co., Stratford, Ont., that appears on another page of this issue.

Cartage Charges in Toronto

In addition to their regular commission of 10 per cent., the Commission men of Toronto require cartage fees of one cent a basket and three cents a crate. This is discussed editorially on page 198. A number of protests against these fees have been sent to THE CANADIAN HORTICULTURIST and the travelling representative of of THE CANADIAN HORTICULTURIST who recently spent a few weeks visiting fruit farms around Lake Ontario from Burlington to Grimsby reports that complaints are general. The following letters state the situation and express the common feeling:

A. W. Peart, Burlington: "The growers feel that the cartage charges are an undue and exceptional burden."

R. C. Fowler, Burlington: "The injury reflected on the grower is the fact that, in addition to 10 per cent. commission, he has to pay cartage charges without any compensating advantage. The commission men say that they put this charge on to defray the cost of delivering the fruit, but we have no guarantee that they deliver it. A great deal of the fruit is taken from the fruit market by the retail dealers when it is bought, but I never heard of any rebate being made on that account. It is manifestly unfair to charge the grower with the delivery of fruit when he receives no benefit. They should charge the retail dealer who benefits by the delivery, supposing, of course, that they do deliver. I prefer to sell my fruit to the buyers in Burlington, rather than to hand it over to tho commission man in Toronto to send me what he sees fit in return. The reason given by the commission men in their circular was that 10 per cent. was not enough for selling and delivering the fruit."

J. A. West, Aldershot: "The growers emphatically resent the extra charge of cartage and it is the general idea that it is a regular fraud; but, owing to the fact that they will not combine, they have to pay. Further, they declare that if the commission men do not get the cartage directly, they will indirectly.

"The reason why the commission men say that they are compelled to charge is slightly altered to suit different districts. For this district the fruit is sent to Toronto by rail and delivered by the express company into tho market, so the commission men spin a yarn about their large establishments, the bookkeepers, delivery men and horses that they have to keep to sell the fruit and *deliver same when sold to their customers;* and one commission man said that if he sold one crate of melons for 50 cents and only made five cents commission, how could he pay for that crate to be delivered five miles, which, he said, was often the case; this single crate trick certainly gulled a good many of the growers. I have before me an advice from a commission man in Toronto on which there are 27 baskets and 21 crates sold for $65.35.—express charges, $3.55, commission, $6.53, cartage, 90c., leaving a nett amount of $54.37; practically 20 per cent. leakage. Of course, the cartage of 90 cents does not look much, but when you come to facts, such as these—there are five growers within approximately one mile radius and each had close upon 2,000 baskets of cherries, totalling 10,000 at one cent a basket, which makes a net gain of $100 to the commission man.

"The Niagara district cannot ship inland to distant points after Friday, so the growers send all the Friday's stuff by boat to Toronto and this is delivered only on to the wharf; therefore, all fruit not sold has to be carted up to the market by the commission man's own team. Probably this fact was the origin of the cartage charge."

Wm. F. W. Fisher, Burlington: "(1) We deliver at the railway station, load fruit on cars and pay charges to destination. At this point obligation for any class of men in the world but farmers ceases. Either the commission man or the purchaser should take charge of it at this point.

"(2) I do not consider it honest to impose on people because they happen to be in one's power. This is stolen money.

"(3) Commission men say there are so many in the business that 10 per cent. is not enough on their business. It does not seem to have occurred to any of them that they might go out of business.

"(4) They do not deliver a large portion of the goods but just pocket the money.

"(5) If necessary a straight amount should be added to the per centage commission."

About Apple Orchards.—An up-to-date book for all persons who are interested in the growing and handling of apples is "The American Apple Orchard," by F. A. Waugh. All the various operations from starting an orchard to marketing the product are discussed in a concise and practical manner. The work is complete in all details. It deals with apple culture as practised not only in the United States but also in Canada, many references to Canadian methods being recorded. The book is published by the Orange Judd Company of New York. The price is $1.00, postpaid. For copies, address the Horticultural Publishing Co., Peterboro, Ont.

When writing to THE CANADIAN HORTICULTURIST, please write on one side of the paper only and write plainly.

COOPER'S V. FLUIDS

For Winter and Summer Use

V1 is an ideal **Winter Spray.** Controls **Apple Scab** and **Fungous Diseases. Eradicates Oyster Shell Bark Louse.** Is a **Bacteriacide** and **tree invigorator.** Produces **More and Better** fruit.
V2 is an ideal **Summer Spray.** Kills with absolute certainty **Aphids, Psycilla and Live Scale Insects, and Young Caterpillars.**
V3 is a **Summer Spray** for leaf eating insects and will successfully deal with **Codlin and Canker Worm, Tussock Moth, &c., &c.**

These Fluids are easily applied and pleasant to use. They are non-poisonous and have no sediment to clog the nozzles. They cause the minimum of wear and tear upon spraying outfit and harness.

ONE GALLON OF SPRAY FLUID MAKES ONE HUNDRED GALLONS OF MIXTURE

Full particulars and prices upon application to

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Alaska-Yukon-Pacific Fair

A representative of THE CANADIAN HORTICULTURIST visited the Alaska-Yukon-Pacific Exposition the last week in July and, while it is impossible in the space at our disposal to give a very comprehensive description of the grounds and exhibits, a few things particularly impressed our representative.

The Fair while not as large in extent as the other World's Fairs held in recent years has its advantages to the visitor, being very compact and necessitating less fatigue in order to see the same number of exhibits. The natural advantages of the location from the scenic standpoint, excel any previous exhibition of the kind held on this continent, and the landscape gardening and floral displays on the grounds are superbly beautiful.

To the Canadian visitor, perhaps the most interesting displays might be considered those of the Canadian building, the Grand Trunk Pacific, the Forestry building and the United States government building, not forgetting the excellent bureau of information provided by the *Vancouver World*, in their unique headquarters representing a Hudson Bay Company's Bastion.

The Dominion government display in the Canadian building, is one which reflects great credit on the officials in charge. The tasteful decorations not only give evidence of great skill on the part of the artist, but of careful attention to the proper illustration of the resources of the country. If any fault is to be found in this building, it might be charged to the orchard scene on the left hand side, which represents an eastern apple packing demonstration, where the fruit on the painted side is gradually merged into a collection of the real article nearer the observer. In this immediate vicinity the painted scene displays an orchard with abnormally long barrels and absurdly tall Canadians, and apple trees planted apparently about six feet apart, all of which is a libel even upon the eastern orchardist, but this might be charitably overlooked if there were another scene representing the modern system of apple packing in boxes, such as is practised in our best orchards, not only in the east but also in British Columbia. The fresh fruit display is highly creditable and helps to convince the careful observer that things have advanced somewhat since the orchardist who painted that scene, ceased operations.

Society for Hort'l Science

The Society for Horticultural Science will hold its annual meeting at St. Catharines, Ont., on Monday, Sept. 13, immediately preceding the meetings of the American Pomological Society which occur on Sept 14, 15 and 16. The Welland Hotel will be headquarters for the Society. The program will be one of the best which the Society has ever had.

Dr. L. H. Bailey, Director of the Experiment Station and Dean of the Department of Agriculture of Cornell University, will discuss "The Field of Research Work in Horticulture." Dr. E. W. Allen, of the Office of Experiment Stations, Washington, D.C., will discuss "The Adams Fund in Its Relation to Investigations in Horticulture." Dr. H. J. Webber, of Cornell University, will outline the work being carried on there under the Adams Fund Act and Prof. S. B. Green, of St. Anthony Park, Minn., will outline the work being done under this act at the University of Minnesota. There will be several other papers, but these were not definitely arranged for in time for publication.

Marketing Early Grapes

(Continued from page 189)

are able to dispose of it to best advantage. This system of selling fruit has many advantages, some of which have been enumerated. Each member of the association has a personal interest in the working of the society. The number of middlemen through whom the fruit must pass is reduced to a minimum and all profits are divided proportionately among the members of the association.

The successful growing of fruit and the profitable marketing of that fruit are entirely different problems. A man may be able to grow good fruit; yet, he may be lacking in ability to market that fruit to good advantage. The great point is to put the fruit up in an attractive package and, if catering to a private trade, stamp it with the name of your farm. Let nothing but good fruit go under that stamp and, when once the name becomes recognized as the sender of good and guaranteed fruit, the matter of sale will be easy. This point is the result largely of the success of the co-operative associations and of private enterprises.

SOMETHING NEW!

Just the thing YOU require for Fruit Picking

The Perfect Fruit Step Ladder

IT is flawless for fruit picking and an ideal general purpose Step Ladder.

Having a very wide base it can be used on uneven ground with perfect safety. By turning the pointed portion of the ladder up it rests among the branches of the trees and makes easy the gathering of fruit.

Made in the following lengths:

6-ft. step extended to 11
8-ft. step extended to 15
10-ft. step extended to 19

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The Stratford Mfg. Co. LIMITED

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BEST AND LARGEST
Line of Ladders made in Canada

STRATFORD, - ONTARIO

Don't fail to see our exhibit of the complete line of ladders which we make, at Toronto Exhibition, under the Grand Stand

Does Your Orchard Pay?

Spraying Outfit

Last year one Ontario grower made a net profit of $3.00 per tree from 32 acres of apples.

YOU CAN DO IT TOO and WE CAN SHOW YOU HOW

If you cannot come to college yourself, send your son. He ought to be well informed concerning the selection of land for fruit; varieties; budding and grafting; preparation and application of sprays packing, handling, shipping, etc. This important branch of Horticulture is taught to all First Year Students at the:—

ONTARIO AGRICULTURAL COLLEGE

GUELPH - - CANADA

WHICH OPENS SEPTEMBER 14th, 1909

Send **To-Day** for a Calendar. It will be sent to you free and will give complete information concerning the cost of course, subjects taught, etc.

Demonstration in Packing

COST
for an Ontario boy

FIRST YEAR
Board
Tuition
Books
Laundry, etc.
$80

SECOND YEAR
$80 to $100

G. C. CREELMAN, B.S.A., M.S., President

NOTES FROM THE PROVINCES

The Gulf Islands of B.C.

W. J. L. Hamilton.

Great crops of all kinds are raised on the islands, that stretch from the shores of Saanich peninsula up to Nanaimo, on the east coast of Vancouver. Wheat yields as much as 50 bushels to the acre; potatoes, up to 16 tons; cereals and all kinds of roots and other crops, in like abundance; and fruits succeed to perfection. Heavy crops of berries of the best quality and bountiful crops of apples, pears and other tree fruits are produced where attempted.

Salt Spring Island is the largest of the group, being about 20 miles long by six to eight wide. Salt Spring Island butter from our Creamery, and Salt Spring mutton from our hillsides, are held at a premium in our markets, but Salt Spring Island fruit, which should be our staple product, is of minor importance. Why is this?

The answer at first seems strange. It is due to the fact that Victoria's surroundings of which this is a part, form the earliest settlement in the province; hence, at first, Hudson's Bay Co's employees—miners, sailors, fishermen and all trades except fruit growers—settled on the land, and because, before fruit tree diseases were known, the finest orchard produce could be raised. Antiquated methods are still followed in some instances, Spraying is contemned. Scale, scab and aphis are, in consequence, in evidence, and naturally much second rate fruit is produced.

But this is not the fault of the locality. At Granges Harbor, where many follow modern methods, and at the South End, where some do the same, fruit of all kinds, second to none, is raised and marketed. Unfortunately, many do not yet realize that the troubles of years' accumulation cannot be cured in a day, that one spraying will not turn an old orchard into a new one, and so, many a wail on the hardship of compulsory spraying is heard. "Fruit growing doesn't pay as it is," say they. "So, how can it pay if we have to go to the cost of spraying several times a year?" Let this be an object lesson to others.

Kootenay Valley, B.C.

E. W. Dynes

The following letter from Mr. W. A. Birman, Thrums, B.C., which appeared in the Nelson *Daily News*, shows what can be done with strawberries even on a very small patch of ground:

"I would like to say a few words on the much talked of strawberry question. I came to this country about 19 months ago and bought a partly improved ranch on which were two acres of strawberries. Part of these had already borne their third crop. Last year, I picked the fourth crop but was one of the shippers through the old association and obtained very small returns for the fruit. A part, however, I shipped directly and obtained for them a fair price. I then plowed up all my strawberries except those on 56 square rods of ground.

"From this small patch I sold 87 crates of berries, which netted me, clear of express charges, $215.30. This amount would have been considerably larger if the plants had been younger and in their first year of bearing instead of the fifth. The picking was all done by myself and my family. In addition to this we harvested eleven loads of hay and looked after other crops on the ranch. This seems to me to prove conclusively that large profits can be realized from Kootenay fruit lands when farming is carried on in a business like way."

Saskatchewan

Angus MacKay

Small fruits were never so abundant and fine as they have been this year. No late spring frost injured the blossoms, and rain fell during the fruiting season in sufficient quantities to give the very best fruit of all sorts. Strawberries and raspberries have been especially good. In a few cases currants and gooseberries were more or less injured by the currant maggot (*Epochra Canadensis*), but on the whole the yield and qaulity have been exceedingly fine. Wild fruits—strawberries, raspberries, gooseberries and Saskatoon berries—have been, like the cultivated varieties, extremely abundant over the entire province.

In larger fruits, crab apples and wild and cross-bred plum trees are well loaded and very promising. Large apples, cultivated plums and cherries have not yet succeeded in any district, although reports claim a few apple trees in bearing in some favored localities.

In the vegetable and root line, no year

THE FONTHILL NURSERIES

BLOCK OF PERENNIAL PHLOX AT THE FONTHILL NURSERIES

Herbaceous Perennials

FOR

Fall Planting

Achillea—the Pearl
Aegopodium
Campanula (Canterbury Bell)
Coreopsis
Delphinium (Larkspur)
Dianthus (Sweet William)
Digitalis (Foxglove)
Funkia (Day Lilies)
Gaillardia
Helianthus
Iris (Japan and German)
Phlox
Paeonias
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Fancy Grasses

No garden is complete without a border of OLD FASHIONED PERENNIALS. Hardy, easy to grow, planted once planted for all time.

We are offering the largest list of these in varieties of recent introduction ever offered in Canada.

PHLOX, PAEONIAS, DAHLIAS, etc., in named varieties. Send for our **DESCRIPTIVE CATALOGUE** it will interest you. ORDER NOW FOR FALL PLANTING. SALESMEN WANTED to sell our High-class Nursery Stock. WRITE US.

STONE & WELLINGTON, TORONTO, ONT.

in the past has surpassed this for large crops of every known variety suitable to the climate. In all probability the quality of some of the sorts may not equal that of drier seasons; this refers chiefly to the potato crop, which at present promises a record yield, if the tops are any index of what the crop will be. Cabbage, cauliflower, beets, carrots, onions, peas, corn and so on, are all far ahead of former seasons, tending to make this a record year for the vegetable garden. Flowers like all else are surpassing themselves this year in beauty, brilliancy and abundance.

Winnipeg

A. J. Richards

Most of the houses of Winnipeg have a garden not only with a view to having a "back-yard beautiful," but from an economic standpoint as well. That Winnipegers are lovers of beauty in nature is evidenced by the pride they take in showing visitors their boulevarded streets, cemeteries and numerous parks which are kept in splendid order under the able supervision of Mr. G. Champion, Parks Superintendent.

Cosmopolitan as Winnipeg's population is, drawn from the British Isles, eastern Canada, the United States and most of the countries of Europe—there is a tie that binds them all in their citizenship, and that is a love of gardening. No matter in what quarter of the city you ramble there are plenty of gardens to admire. In the residential districts, where the merchant princes reside—Broadway, Crescentwood, Fort Rouge, St. Johns—the grounds surrounding the mansions are in keeping with the mansions themselves, having fine lawns with tastefully arranged flower beds in which are grown most of the annuals and perennials it is possible to grow in this city. These wealthy citizens, like their less fortunate brothers, vie with each other in keeping abreast of the times in all matters pertaining to gardening, with the result that there is no city of the size of Winnipeg that can boast of prettier residential sections.

In the north end where "foreigners" predominate, vegetable gardens surrounding houses of any or no design are the order, and as the residents are mostly of Teutonic extraction, bringing with them from their old homes a love of "Sauerkraut," the national dish of their country, cabbage, which is an essential ingredient, is grown more than any other vegetable and a good part of every garden is devoted to cabbage culture whilst the other vegetables are grown in smaller quantities and are grown successfully, so that the table expenses of these peoples are kept at a low figure during the greater part of the year. This is a big thing when it is considered that the average number of persons living in a house is from 10 to 15.

In the centre of the city where the houses are close togther and population thickest, the back-yards as a rule are large enough to contain good-sized gardens, either flower or vegetable, and with a little labor and a small outlay can be made to yield a crop of vegetables that materially reduce table expenses, for it has been proved beyond doubt that the soil of Winnipeg will grow most vegetables, or if a flower garden is preferable, as good results can be obtained from a pleasurable standpoint by planting flowers, as from a profitable one by growing vegetables.

On the outskirts of the city where the population is mostly made up of working men, is where the advantages of gardening are most apparent. There, large gardens, and intense cultivation of both flower and vegetables is the order. This is especially so in Weston, the home of the C.P.R. shopmen, where a cottage gardening association was formed last June and a successful exhibition was held in August. This year an earlier start is possible. The association is in a flourishing condition and the members are busy looking after their gardens in anticipation of the show to be held at the end of the season. To foster artistic and systematic work, the association is offering prizes for the best kept lawn and garden, best flower garden, and best kept vegetable garden.

The advantages of gardening are so many that one could go on writing indefinitely about them. In Winnipeg where all are

You Don't Get Full Value Out of the Manure When You Spread It by Hand

SPREADING with a machine pulverizes and makes the manure fine, and the first shower washes it all into the soil. There is no loss—none of it washed away. It is in condition for the roots of grains and grasses to lay hold of it and get the benefit from it. *You ought to spread manure with an*

I. H. C. Manure Spreader

You will be able to cover twice the surface and get practically double the value from the manure that you are getting by hand-spreading.

It is the only way to keep up the fertility of your soil without buying commercial fertilizers. You are not only able to keep your farm in a high state of fertility with the manure produced upon it, but the work of spreading the manure is cut in two.

The I.H.C. Manure Spreaders are right-working, light-draft machines, either one of which will spread the manure of your farm for many years with the least annoyance and the least possible outlay for repairs. The **Cloverleaf** is an endless apron spreader. The **Corn King** is the return apron style. You can spread slow or fast, thick or thin as wanted. Each spreader is made in several different sizes.

Any International Agent in your town will supply you with a Spreader Catalogue. Call on him or write nearest branch house for any further information you may desire.

CANADIAN BRANCHES: Brandon, Calgary, Edmonton, Hamilton, London, Montreal, Ottawa, Regina, Saskatoon, St. John, Winnipeg.

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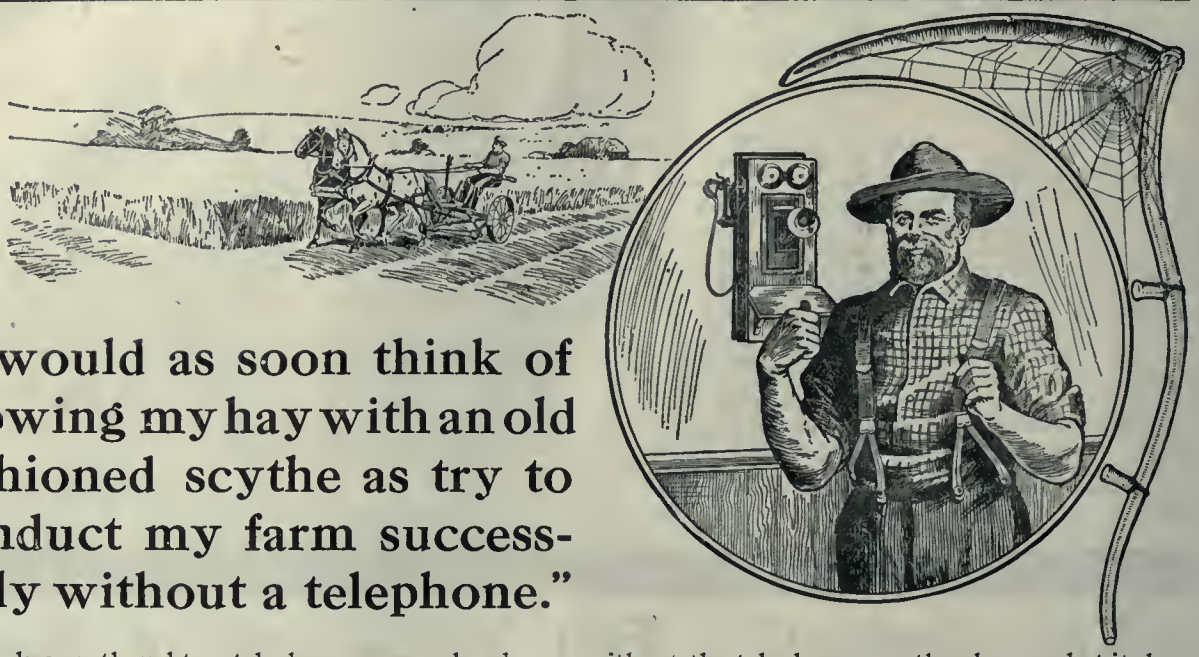
in a hurry to get rich (or apparently so), it is gratifying to note that time is found to enhance the attractiveness of the back-yards by cultivating them, and instead of unsightly and unsanitary rubbish heaps, well-kept gardens are the order. It is worthy to note that the seedsmen report this season the biggest demand for flower and vegetable seeds from the citizens in the history of the city.

New Brunswick

Editor, THE CANADIAN HORTICULTURIST,—In reply to your marked expression of interest in New Brunswick horticulture, I would say, from a three years' observance here, that a very considerable portion of the Province is adapted to fruit growing. This is proven by what nature has already done unaided by man in growing the apple, plum and cherry, where seeds were dropped by birds and other means about the fields and forests. These are the farmers' object lessons. Unfortunately the farmers leave the matter there and say, "if these have grown so well, what further need of culture?" But we are living in a time when higher quality is demanded and the trees should give a product, in half the time of waiting.

A half century ago, the late Mr. Sharp



"I would as soon think of mowing my hay with an old fashioned scythe as try to conduct my farm successfully without a telephone."

"I always thought a telephone was a handy thing to have in the house.

"But I looked upon it as a luxury—a step-saver and a convenience for lazy folks. A time-saver for the business man who sat at his desk and talked over the phone to a score of people during the day.

"I never realized how much more necessary it was to the farmer in his isolated position—how much time and money it saved him.

"Before I put this instrument in my home, I considered a telephone an expense—now I know it to be an investment that pays big interest.

"I wouldn't be without a telephone now, for it certainly saves my time and makes money for me.

"Through it I am in immediate touch with everybody with whom I do business—the general store, the farm implement shop, the produce buyers—I can talk things over with anyone I wish, no matter how far away they are.

"Then think of what it means to my wife and girls. They look upon the telephone as their best friend—their fleet-footed messenger in time of trouble or sickness—their bearer of news and social messages to friends on distant farms.

"Yes, the women folks certainly wouldn't be without the telephone now they know what it does for them—and it would have to cost many times what it does before I would part with it."

You need a telephone on your farm—you are enough of a business man to realize what it means to you in dollars and cents. You can worry along without it of course—just the same as you can run your farm without labor-saving implements—but you are losing money every day you do.

Yes, you need a telephone on your farm—but it must be the right telephone. A poor system is worse than none at all.

The Northern Electric system and equipment is what you want. Ninety-five per cent. of the telephones used in Canada are made by them. They have overcome all the difficulties that their imitators have yet to meet.

If you have a telephone at all you should have one that you can depend upon—one that is always working in good order—one that will carry messages clearly and distinctly no matter what the distance. That is what you get when you install Northern Electric apparatus.

Write for our Bulletin No. 2216. That will tell you just how easy it is for you to secure perfect telephone service. Write to-day.

THE NORTHERN ELECTRIC AND MANUFACTURING CO. LIMITED

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Manufacturers and suppliers of all apparatus and equipment used in the construction, operation and maintenance of Telephone and Power Plants.

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of Woodstock, who was one of Nature's noblemen in horticulture, planted commercial orchards and was successful in growing better fruit. He proved that the inland portions of this province would grow fine fruit in plums and apples. At his death, a period of indifference followed, but a revival has set in again. This year at least a dozen persons have planted 500 winter apple trees; two or three, 1000 each; and many more, 100 apples each; and the principle of cultivation is taking root in the general mind.

The two chief difficulties are the need of deep tile drainage, three to four feet deep to take all standing water from the roots and the need of bi-monthly stirring of the soil or a buckwheat crop growing rich and strong about the trees. Small fruits are a great success and are in strong demand. In fact, general agriculture is improving under the government's stimulating influence. The farmer is encouraged to grow a larger product and more valuable on less acreage.

Around the Bay of Fundy heavy tidal waters, the Petticodiac muddy stream, the Straits of Northumberland and the great St. John and Kennebec, both fresh water rivers, are the best areas for the higher grades of apples as the extremes of heat and cold are greatly modified. Here can be raised the qualities that England uses and that her markets call for. On the whole, the outlook for progress is good even in the export trade.

I wish that THE CANADIAN HORTICULTURIST was circulating more widely here so as to inculcate more system in the work, both in the country and in the cities. Many of the city people live all the summer months in their cottages in small places and in the country. This is a regular feature of the people of St. John, year after year. They are planting orchards and gardens and beautifying these places and are the leaders in making a more beautiful New Brunswick.—W. C. Archibald, St. John, N. B.

Nova Scotia

P. J. Shaw

The apple crop now promises to be considerably smaller than last year. Reports from the Annapolis Valley state that the season has been very dry and apples have fallen in consequence, especially in orchards receiving little or no cultivation.

No one can say how much the loss from this cause will be, nor how much short this year's crop will be, but it is certain the crop is not going to be as large as was anticipated earlier in the season.

Annapolis Valley East, N.S.

Eunice Watts

The apple prospects are good, but trees are not so heavily laden as the show of blossoms predicted; many failed to set, and the dry weather caused fruit to drop. Red Astrachan and Duchess were the first to be shipped to local markets. A report from western Kings says that some orchards have been damaged by hailstones. Various kinds of caterpillars, including those of the tussock moth, fall web worm, and others are plentiful.

The raspberry crop has been affected by the drought but rains came at the latter end of the picking. Blackberries look promising, but did not commence to ripen before the rains. Most flower gardens are unusually bare and dried up for this time of the year.

Tomatoes were bringing $1.25 a basket for the first shipment in August. Most vegetable crops are late.

In the vicinity of Waterville, Kings Co., the farmers are meeting together for the purpose of forming a co-operative fruit packing company, which is not received favorably by some of the dealers but the orchardists hope that the company will be an accomplished fact by this fall.

Budding is now in full swing where it is practised, but to most people it still seems to be a mysterious operation.

Annapolis Valley West, N.S.

R. J. Messenger

We have been suffering from the most severe drouth for years. Orchards that have been properly cultivated have not suffered much, but in uncultivated and neglected orchards the apples have both dropped badly and are also small. That there will be a lot of small apples in the valley this year is generally conceded. There will be little spot and few wormy apples but lots of No. 2's.

Insects have been very numerous this year. First the canker worm did much damage, then the aphis proved quite a nuisance to the orchardists. This seems to have been noticed all through the valley and it is difficult to reach it with spray, since its habit of living curls the leaf about its feeding ground and protects it almost wholly. It is to be hoped that our winter spraying will destroy the eggs of this pest. In connection with this, there are this year a great many small, wrinkled, deformed apples and some of our farmers think it is a result of the work of the aphis. Just how the eating or sapping of the leaves would affect the apples in this way I cannot understand. In my own orchard, which was winter sprayed, there is little aphis and I have seen many of these deformed apples on trees entirely free from aphis.

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This is just the season to get the most benefit from thinning fruits. The fewer apples that are left on the trees this dry weather the nearer marketable size will the remaining ones grow. The difference between thoso thinned and not thinned is already apparent.

Montreal

E. H. Wartman, Dominion Fruit Inspector

Montreal as a fruit distributing point shows wonderful activity at this season. On July 29, Aug. 2 and 5, 29 cars of California fruits were sold by the Montreal Fruit Auction Co. J. J. Callaghan, auctioneer, beats all records by selling eight cars of California fruits in three quarters of an hour. These 29 cars were sold within a week, aggregating in cash $30,000. The California fruits, pears, plums, peaches, nectarines and grapes are particularly fine in quality and well packed. As the individual fruit is wrapped and closely packed in boxes and crates tends to its keeping quality, the percentage of wasty boxes is very small. When we try to supply our city wants and country orders a large stream has to continually come in to meet the emergency. Think of 56 cars of United States strawberries coming to our market before our own are ready to pick. When we add our banana trade and lemons, oranges and melons, the aggregate is very large.

Well, what about our own domestic fruits this year? Cherries and raspberries are coming in large quantities. The quality has been very fine. Conditions have been so good in grading, fullness of baskets and boxes, and general honesty of packs, that they have caused a confidence in the minds of buyers, and fruit men here declare there has been a large and profitable volume of business all around. Tho apple crop on Island of Montreal does not look too promising or in the eastern townships either, where you hear the growers say, "I usually have 200 bushels, but this year I will have to buy." Nevertheless, I am of the opinion that we will run far over the million mark for export in apples this year. It becomes all persons in the fruit trade of our Dominion to do his or her best in the building up of an ever increasing fruit trade of honest repute.

Vancouver Island, B. C.

F. Palmer

Small fruits are almost over, although a few loganberries are still being sold locally. The crop of small fruits has been an exceptionally good one, due to the unusually late rains.

Sweet cherries are over. The sour cherry crop is only medium, but the fruit is of exceptional size and quality. Nine-tenths of the cherry crop is being shipped to the north-west, through the Progress Fruit Packing Co. This Company is doing very good work and is securing from $3.00 to $3.50 per 24 pound crate of cherries, for the growers.

Plums and prunes give promise of a good crop. Early plums, such as Clyman and Peach plum, are being gathered now. The prune crop is also to be handled by the P. F. P. Co.

Apples are light in most districts, due to a dry fall last year; consequently, the trees did not have vitality enough to set the fruit this spring Early apples such as the Yellow Transparent and Duchess, are already being sold locally. Pears give promise of being a record crop. The trees are heavily loaded with fine, large fruit. Bartlett's are especially good.

The hard winter, which did so much harm to the orchards on the mainland, did very little harm here, due to the proximity of the ocean. A good average fruit crop is expected; also, as fruit is so scarce on the mainland, unusually high prices are assured.

Similkameen Valley, B. C.

J. D. Harkness

Orchardists here await with much interest the proposed action of the Department of Agriculture in establishing an experimental farm or a series of experimental stations in British Columbia. Not only the growers themselves, but the department agent, who has been travelling through and examining the fruit valleys, is of the opinion that nothing short of a chain of stations will adequately meet the needs. It is found even now that expert horticulturists from the coast or the Fraser Valley who essay to address audiences in the interior find themselves at sea and their advice inapplicable, and vice versa. So radical are the differences of climate and other conditions even within short distances that it would be well to have at least half a dozen experimental stations, even if they were small, rather than one or two large farms. Also, a travelling instructor in irrigation would be a very useful functionary. The knowledge of most orchardists on the subject is very elementary, and their previous experience nil.

With the exception of peaches and tender grapes, a fair crop of nearly every kind of fruit is assured. The summer's growth has served to show that the effects of last winter's entirely abnormal cold were not so great as was feared at first. Such a winter had not occurred in a lifetime, and may not occur in another lifetime, but it has served at least one useful purposse, in showing what varieties are hardiest, and in show-

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ing that by proper control of growth and irrigation, damage from inclement weather can be guarded against. Where trees were put to sleep for the winter, so to speak, they were found to come through well, but a late undergrowth stimulated by irrigation endangered their life. On the other hand it is stated that to withhold water entirely in the fall may cause damage from winter drought, which would seem to imply that a wetting just before freezing time would do good. This is a sample of the many problems that confront the irrigator, on which he would like to get authoritative information.

Work was resumed this summer on the railway line through the valley, and the road is now about completed westward as far as Princeton. As a result, settlement and mining are stimulated. Both the G.N.R. and C.P.R. have strong survey parties at work in the Cascade mountains, and prospects are brighter than for some time past for the long delayed direct rail connection of the Similkameen with the Fraser Valley and the coast.

New Fruit Organization

A meeting of fruit growers was held at St. Catharines, Ont., Aug. 7., as the result of the efforts of Mr. J. B. Berry, of Rapid City, Man., and Mr. J. Jones, of Winnipeg, who during the past few weeks have been endeavoring to form a co-operative company of fruit growers to ship their fruits to the west, there to be disposed of by their own paid officials without the aid of any middleman between the grower and the retailer. A company was then and there formed which is to have a capital of $100,000 when fully completed, divided into 5,000 shares of $20 each, and steps were taken to get it incorporated without delay.

The company proposes the erection of a large cannery and jam factory which will take all the stockholders' surplus fruits, thus obviating to some extent the gluts which occur from time to time, especially in the local markets.

The provisional directors, pending incorporation, are Messrs. W. H. Hough and George W. Keyes of St. Catharines; Mr. A. M. Harris, of Port Dalhousie, and Mr. James Marlow, of Grimsby, who together with J. B. Berry have been formed into an executive committee pro tem. The chairman is Mr. A. M. Harris and the secretary-treasurer, Mr. H. T. Hern of Port Dalhousie.

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FRUIT CROP SITUATION

The apple crop prospects are not as good as was predicted at blossoming time. There has been little change in the situation since last report, except that rains in August im proved the outlook considerably. It is expected that the sample generally will be small but fair in quality. Reports from correspondence are as follows:

DIGBY CO., N.S.

Bear River.—Fruit crops below average. Apples set well but some varieties, notably Gravenstein, set in clusters and are small.—W.G.C.

KINGS CO., N.S.

Wolfville.—Judging from present appearances, Nova Scotia will produce over 500,000 barrels of apples of good quality for export.—J.W.B.

CHAALOTTE CO., N.B.

St. Stephen.—Apples promise one third to one half a crop. Codling moth is unusually abundant.—C.N.V.

CARLETON CO., N.B.

Woodstock.—Apple crop is very poor. Crimson Beauty, our early apple, is almost a total failure; New Brunswick apple, from 10 to 25 per cent. of a crop.—H.G.N.

TERREBONNE CO., QUE.

Ste. Adele.—The apple crop will be an average one.—D. W. Grignon.

ROUVILLE CO., QUE.

Abbotsford.—Apple crop will be light with quality fairly good. Buyers are paying $1.35 to $1.50 on the trees. The plum crop is light.—E.A.B

CHATEAUGUAY CO., QUE.

Chateauguay Basin.—Where spraying has been carefully done, apples are comparatively free from spot but codling moth and plum curculio have done much damage in some localities. Fruit has fallen off considerably but the remainder are good size and color. Leaf blight is more prevalent this season than ever before. Very few apple buyers are around yet. No. 1 Duchess are selling from $2.50 to $3.50 a barrel. Prospects are for a medium to light crop of fall and winter apples.—N.E.J.

HUNTINGDON CO., QUE.

Covey Hill.—With the exception of a few orchards of Fameuse, apples in this district are almost a total failure. The curculio has done a great deal of damage. No apple buyers have been here yet. Duchess that were sent to Montreal, netted about $1.00 a barrel.—G.B.E.

STANSTEAD CO., QUE.

Massawippi.—Fruit crops are below the average. Owing to the drought, early apples are below average in size. Winter apples are good and free from spot.—G.P.H.

HASTINGS CO., ONT.

Belleville.—A light to medium crop of winter apples is expected. Some growers have sold by the lump for good prices.—F.S.W.

DURHAM CO., ONT.

Newcastle.—Apple crop is variable. Some orchards are heavily laden and others very light. Many apple buyers are operating and a number of lump sales at high prices have been made. Prices started at $1.00 on the trees and have increased to $1.50 and even higher. Nearly all orchards have been sold except those belonging to members of the Newcastle Fruit Growers' Association. The quality of apples generally will be clean. Bartlett pears are a full crop of excellent quality.—W.H.G.

ONTARIO CO., ONT.

Oshawa—Unsprayed orchards show worms. Aphis has done serious injury. Buyers are after apples. Many have been sold at $1.00 a barrel on trees or by lump. Some buyers have offered up to $1.50 for good varieties only.—E.L.

PEEL CO., ONT.

Clarkson.—Apples both early and winter will be a fair crop but a large number will be undersized and ill-shaped. Some buyers are offering $1.25 for No. 1 and No. 2's and a few orchards have been sold by the lump. Raspberries turned out well and prices averaged 10 cents. Lawton berries are a good crop; pears, fair crop; grapes, good.—W.G.H.

HALTON CO., ONT.

Burlington.—Apples have formed in clusters on many trees and, if not thinned, will be small and poor in quality. In pears, Bartletts show a medium crop; Duchess, light; Kieffer, medium.—W.V.H.

LINCOLN CO., ONT.

St. Catharines.—The crop of peaches will be fairly good; grapes, good; pears, medium; apples, light; plums, fair; tomatoes, excellent.—G.A.R.

LAMBTON CO., ONT.

Forest.—Since rains, apple crop is looking fine. Codling moth rather prevalent but well controlled by spraying. Fall apples are a light crop.—A.L.

BRUCE CO., ONT.

Walkerton.—Apples are looking a little beter but there will be many small ones,

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somewhat spotted. Buyers are offering 75 cents to $1.00 on trees. Plums generally will be light.—A.E.S

ESSEX CO., ONT.

Ruthven.—Peaches are a splendid crop. Pears are good. Apple crop will not be full, and will be poor in quality.—J.O.D.

MANITOBA

St. Charles.—Raspberries are a fair crop. Red currants were badly affected by currant fly and dropped from bushes; black currants, good crop. Plums and crab apples are heavily loaded with fruit which is maturing under favorable conditions.—D.W.B.

SASKATCHEWAN

Prince Albert.—There is every prospect of a fine crop of fruit. The wild fruit was bountiful, raspberries, blueberries and cranberries being in great abundance.—G.T.B.

KOOTENAY CO., B.C.

Nelson.—The pear crop is considered good; apples, two-thirds of average; plums, good; peaches, poor.—J.E.A.

NEW WESTMINISTER CO., B.C.

Hammond.—Crop of black currants and gooseberries, good; early blackberries, light; late blackberries, fair; plums, fairly good; Italian prunes, medium; peaches very light. Almost all varieties of apples will be light and rather scabby.—C.P.M.

NANAIMO CO., B.C.

South Salt Spring.—Apples will be a short crop owing to a late frost in May, about the first on record. Wealthy apples with me are a fair crop. Pears are short with Bartlett the best; plums, short; prunes, half a crop; sour cherries, fair; blackcherries, good; Loganberries, full; walnuts and filberts, heavy.—W.J.L.H.

Quebec Pomological Meeting

The 17th anual summer meeting of the Pomological and Fruit Growing Society of the Province of Quebec, held at La Trappe, Que., on Aug. 24 and 25 was one of the most successful in the history of the association. The gathering was a representative one, fruit growers from the principal fruit sections of the province being present.

The Trappists are agriculturists, having about 500 acres of their 1,000 acre-estate under cultivation. Their fruit plantation covers some 70 acres and is in excellent condition. Professor Reynand is doing valuable work for the province, not only through his demonstration commercial orchard, but also in the good quality of information imparted to the 40 odd students in attendance at this college. The fruit crop is excellent, the trees on the whole being well covered. The fine stock of cattle indicates thoroughness in all branches and one is impressed on all sides by the fact that the Trappist Fathers are successful scientific farmers.

President Reynand welcomed the fruit growers of the province to La Trappe. He expressed satisfaction that through the co-operation of the Right-Rev. Father Abbot, he was able to entertain the association during their stay at La Trappe. Fourteen years ago a similar meeting was held here and since that some of the then active members have disappeared. As these have gone new members are coming along to fill their places, imparting new life and energy to the society and adorning the horticultural interests of the province. A similar evolution is evidenced in not only this particular but also in respect to varieties of fruits which are taking the place of older ones which in their day served their purpose well.

More attention should be paid to selection of variations in varieties in the propagation of our principal fruits and also in the use of good strong stock, for grafting on.

Forestry and its influence on the agricultural and horticultural problems deservedly was receiving more attention, for, in order to protect ourselves and develop the best agricultural and horticultural conditions, this subject must receive the thought and careful consideration of all fruit growers.

Lack of knowledge rather than lack of good-will retarded advancement in horticulture, concluded the president. Definite and concrete examples were looked for by those interested in fruit culture, and the aim of such institutions as Macdonald College and the community of the Trappist Fathers is to give this knowledge on a sound and practical basis. This community 25 years ago started in the virgin forest and the result shows what well directed effort will do.

The regular programme of the meeting was followed. Dr. J. Od Beaudry, presented an able paper on "Melon Culture." This paper will appear in full in a later issue. Professor Blair outlined the method followed in developing the Montreal market melon. He advised more care in the selection of strains, some of which were much better than others. Mr. Brodie followed, dealing with many of the good points of Dr. Beaudry's paper.

Capt. R. W. Shepberd's paper on the Fameuse was a plea for more care in the selection of the best strains of this variety. He thought the variety in some instances showed marked signs of decline. This may be due to selection of scions indiscriminately, or to the use of stock which was not vigorous. It seems that the lack of vitality may also be due to lack of care in the development of the orchard. No doubt all of these factors contribute in a certain degree to the lack of vitality which is more or less noticeable in the trees of Fameuse now planted. Mr. Shepherd thinks the Fameuse should be considered the best variety for this province and that every effort should be made to keep it up to its old standard. Some effort should be made to encourage nurserymen to propagate from the best and most productive strains..

The address by Rev. Father Athanase, of La Trappe, on the cultivation of tomatoes and the canning of same was well presented. This paper will appear in a later issue. It contained many points of great value, especially in regard to the profits from this crop when home canned.

In discussing the reason why we loose money in the handling of orchards, Mr. R. Brodie thought more care should be paid to spraying, pruning, cultivation and marketing. Without careful attention, the result of years of work may not return a profit. He had yet to know of a year when, if the proper attention were given to these essentials, profit would not result. More care in selection of varieties and care in selection of the location were of prime importance.

Some other valuable papers were read. These will be reported in part or in full in the next issue of THE CANADIAN HORTICULTURIST.

A resolution was passed unanimously and heartily thanking the Trappist Fathers for their kind hospitality, for the manner in which they facilitated the business of the sessions, and for their work in the interests of Quebec horticulture. A resolution was carried asking the government of Quebec for $1,000 to defray the expenses of getting up an exhibit of fruits for Great Britain this fall.

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Ontario's Export Apple Trade

P. P. Farmer, Toronto

When in England last winter, I learned some things that may help to improve Ontario's apple trade with Great Britain. There is there, as elsewhere, the common ordinary produce which sells cheap, and the selected well-packed commodity which commands from the consumer an attractive price—a price away above that which is in proportion with the cost of production Superior quality of commodity, practically speaking, always gives the greatest returns for the cost of production and marketing and this is true especially where the cost of transportation is a large factor in the cost of the commodity laid down at the market. It costs no more to transport a box of apples which sell for twelve shillings than it costs to transport a box which only sells for five shillings.

There is also another very important advantage in supplying the market with a high-class product. It has been proven time and again that if you supply a market with any desirable commodity, the fact that the consumers see this offered for sale makes them desire to purchase it, and when they buy it and use it, that very offering of this product for sale, creates in itself a demand. This is particularly true of the banana trade, which has been extended so successfully by this method and it applies directly also to the apple situation. A few apple growers in Oregon have been putting up choice apples in a neat and attractive package, and have been offering the same to the British public through the high-class fruit stores. They have been extending their trade to such an extent that the Oregon Newton Pippins have a reputation as the standard apple on the British market.

An appreciable number of Ontario apple growers could co-operate and pack certain varieties of Ontario apples in bushel boxes, each apple carefully wrapped and each apple carefully selected to a size, so that there would not be different sizes of apples in the same box, and then ship these apples to a commission firm with whom they had previously negotiated and arranged to have this specially selected fruit offered for sale in some of the best fruit stores in the United Kingdom. They could arrange to send a regular supply so that these stores, whether they be few or many, could continually display in the sight of their customers, this superior fruit, familiarizing them with the fruit and the varieties, but more particularly with the name of the brand under which the apples will be sold. Time would bring to the growers co-operating in this movement, a substantial trade and increased profit.

The reason that I suggest shipping through a commission firm is, because there will be opposition to such movement if an attempt is made to enter the market direct. The men in the apple business in England are too strong a factor to ignore. The Ontario growers who co-operate might find it advisable to purchase a partnership or a controlling interest in a commission firm operating at Covent Garden or to establish a commission firm of their own. When the trade was firmly established, it would be possible then to do away with the commission firm, if thought advisable, and ship direct to retailers; but, at the present time in such a movement as this, it would be necessary to avoid any antagonism on the part of the commission men. These apples should be clearly marked with a brand or name of the firm so that the consumer would get into the habit of looking for apples put up by this organization. The Oregon apple growers are adopting a method somewhat similar to this, and, as a result, their apples bring a top price in the English market, retailing in December last at four pence per pound.

I have said nothing regarding the increased profit which would accrue to the growers by saving the fees of the middle men. That has been discussed so often, from time to time, that it need scarcely be taken up here. The attractiveness of our fruit as it reaches the consumer will be the largest factor in increasing the consumption of the same.

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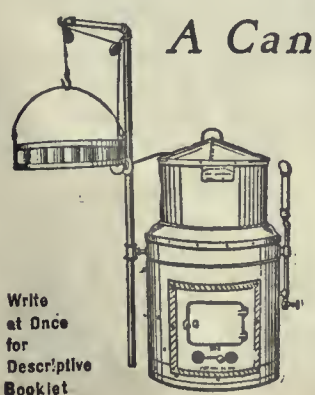

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POULTRY DEPT.

Conducted by S. Short, Ottawa

Reports from eastern Ontario indicate that early hatches this season were poor and that fewer chickens on the whole were hatched and these are chiefly late. Perhaps less attention was given this year than usual to poultry raising. The high price prevailing for all grains and ground feeding stuffs make poultry raising a serious problem, especially to those who wish to make a profit. There seems to be no hope that grain will be cheaper in the future. To offset this, eggs and poultry are much more expensive.

It would not be a surprise to see eggs at $1.00 a dozen the coming winter. One man in Ottawa claims that he sold his eggs last December at 90 cents a dozen. The best way for each householder to get fresh eggs cheaply is to a few fowl. Nearly every house in our cities, towns and villages, has sufficient back yard space to accomodate a few hens, say seven or eight. A cock is not necessary because his crowing will annoy the neighbors and eggs for hatching can easily be obtained in the hatching season from another source. A few hens will do remarkably well fed upon the table refuse which is very often burned or wasted. The addition of a little grain to the table scraps makes a well balanced ration, in fact, the very best and, with intelligent attention to cleanliness, laying fowl can be successfully kept in a very small space. Anyone intending to begin poultry keeping or to improve their stock can do so more cheaply now than at any other time. All breeders have surplus young stock to dispose of at this season and will sell either yearling birds or chickens at bargain prices.

It is now time to overhaul the hen house, repair broken windows, whitewash the interior and get ready to put the laying stock into winter quarters.

I enjoy THE CANADIAN HORTICULTURIST very much, and appreciate the improvements being made.—P. Austin, Lambton Co., Ont.

A Dominion fruit inspector has been appointed for the Niagara district in the person of Mr. W. Furminger of St. Catharines. His duties will be confined chiefly to the tender fruits, which, in cases where the practice is not now followed, he will endeavor to have graded and packed in accordance with the demands of the law.

Professional and amateur gardeners will be interested in the "Autumn Floral Guide" for 1909 that has been issued by Dupuy and Furgeson, Montreal. It contains a full list of the varieties of tulips, hyacinths, narcissi and other bulbs, perennials, shrubs, trees and other plants and articles for horticulturists. The new white trumpet daffodil, "Mme. de Graaff," is offered. It is a beautiful flower and a strong grower. The collection of old-fashioned hardy perennial plants is another feature of the catalogue. Send for a copy.

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Ginseng is the most profitable crop in existence for small acreage, is easily cultivated and grows anywhere in Canada. Our stock of roots and seeds is the result of years of development and is guaranteed. Send 4 cents postage for illustrated booklet.

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The Canadian Horticulturist

Vol. XXXII OCTOBER, 1909 No. 10

Overcoming Winter Injury*

W. T. Macoun, Horticulturist, Central Experimental Farm, Ottawa

WINTER injury to fruit trees causes great loss to fruit growers in the colder parts of the United States and Canada every year, but in some years the losses are so great that in many cases discouragement follows and new trees are not planted. Even in the warmer parts of the United States and Canada where the tenderer kinds of fruit are grown an occasional severe winter destroys many an orchard which after years of care had begun to bear profitable crops. We have been asked at this time to prepare a paper on "Overcoming Winter Injury," but it must be admitted at the outset that the best known methods of overcoming winter injury are not entirely satisfactory.

None of the important tree fruits grown in North America are indigenous. The apple, pear, domestic or European plum, Japanese plum, cherry, peach, orange and lemon are all natives of the old world and it would be difficult to find any district in North America where the climate both of the air and soil, is the same as where these fruits grew or grow wild in Europe or Asia. Centuries of acclimatization fixed limits beyond which these fruits did not perpetuate themselves, or, at least, spread but slowly, being probably killed out at their outer limits by very exceptional climatic conditions, either of summer or winter, occurring after long intervals, perhaps even of centuries.

It is not to be wondered at that these fruits transported to other climates which at first glance seemed to be very similar in most particulars to those in which they flourished at home, do not perpetuate themselves. It may be that there is not enough snow in the winter and the roots are killed, or it may be that it is too dry in summer and the trees die of drought, or it may be that the air is too dry in winter and the trees dry out. Too much rain late in summer may start the trees into new growth and they are in bad condition to withstand the low temperatures of winter, and frequent changes in temperature in winter from high to low temperatures, and vice versa, may be new and too trying experiences for these imported fruits. It will require a long time to determine in what parts of America these fruits will become naturalized and what the limiting factors are which prevent their survival in other parts. While these trees are said to be hardy if they survive a few generations in a particular district, this term is only used in a relative sense. True hardiness is adaptability to environment not for a few generations or a few centuries but for many centuries. No increase in the ability of individual specimens, which were half hardy or which killed to the ground twenty years ago, to withstand adverse climatic conditions at Ottawa, has been noticed at Ottawa.

The *natural* perpetuation of the species or variety, or the extension of its range when not under cultivation, need not, however, cause any anxiety to the fruit grower. His object is to extend the *successful culture* of the different fruits over as wide a territory and as great a diversity of climates as possible, and he can, if his trees are all destroyed, soon plant a new orchard of the same varieties from other sources; whereas in nature long periods might elapse, after a series of exceptional years, when there had been great destruction to trees, before the range of the species was again extended.

There is a great difference in the hardiness of varieties of the same kind of fruit and it is only by experiment that man is able to determine what varieties will continue hardy long enough in his district to make it profitable for him to grow them. He finds by experience that the hardiest fruits for him come from the climates in the old world, or in America, most nearly resembling that in which he lives, or they come from varieties which are descended from species which come from climates most nearly resembling his own. Thus the first step in overcoming winter injury is to plant the hardiest varieties. Unfortunately, the hardiest varieties are not always the best in color, or quality, or may not be of the season of maturity which is desired. Man obtains what he wants by crossing the hardiest varieties with those having the other characteristics. He may extend the limits of the successful culture of the different kinds of cultivated fruit by crossing them with the native species.

There are not yet, however, sufficient hardy fruits having all the other desirable qualities, which are suited to all the climates in America where man would like to grow fruit, hence it is usually necessary to grow fruits which may not always prove hardy when there are unfavorable summers and exceptionally severe winters. In such cases, and they are numerous, it is necessary to resort to special methods of culture as an aid to overcoming winter injury.

It is not our purpose in this paper to deal with winter injury in the south, as we are not familiar enough with the conditions there to discuss the matter, but we believe that some of the methods here suggested of overcoming winter injury may be useful even in the citrous belts.

The Central Experiment Farm, Ottawa, Canada, is situated in latitude 45 degrees north, and 75 degrees west longitude. There is usually a sufficient supply of moisture and heat during the growing season to cause a strong growth on healthy trees of apple, pear, domestica plum, cherry and peach, and there is usually a good covering of snow to protect the roots of the trees in winter. The temperature in winter seldom goes as low as 30 degrees F. below zero, and very rarely any lower. Winter sets in as a rule during the latter part of November with the ground frozen and there are usually few thaws between that and the middle of March. The snow, as a

Delightful and Instructive

THE CANADIAN HORTICULTURIST is not only a source of delight for one interested in horticulture, but unusually instructive on things that pertain to the culture of plants, shrubs and fruits. It is to me a treat to read the well written essays, including the discussions on the improvement of home grounds and of parks.—A. E. Small, Buffalo, N. Y.

*A part of a paper read at the meeting of the American Pomological Society, held at St. Catharines, Ont., in September. The forms of winter injury mentioned in the concluding paragraph of the matter herewith published already have been discussed by Mr. Macoun in the columns of THE CANADIAN HORTICULTURIST and of *Farm and Dairy*, which is published in the same office. Any person not familiar with what Mr. Macoun has said on these subjects, may secure copies of Mr. Macoun's report for year ending March 31, 1908, by writing to the Central Experimental Farm, Ottawa.

rule, is not off the ground until near the middle of April.

Some exceptions to these average conditions are an occasional dry summer followed by rain in the fall, sometimes causing the trees to start fresh growth and sometimes even to bloom a little. These conditions may be followed by an unusually cold winter with the temperature 15 degrees F. to 25 degrees F. below zero for several days in succession. Occasionally there will be little or no snow on the ground for a time in winter, during which period there may be great changes of temperature, causing root killing. Sometimes a summer is cool and moist, the trees grow late, the wood is not properly ripened and the tops of the trees are killed. With these conditions it has been found that most winter apples are not hardy, the Northern Spy, Rhode Island Greening, Baldwin, and Tompkins King being all too tender. Only the Russian pears can be called hardy, though the Flemish Beauty succeeds very well in other places not far away. The domestica plums live for a time and occasionally bear good crops of fruit, but most varieties are, as a rule, either winter killed before they begin to bear or have at least their fruit buds destroyed. Some cherry trees stand the climate for a time, but before very long the trunk splits and the tree dies. Even while they are healthy the fruit buds are killed nearly every winter. Peaches have to be laid down and covered with soil to even save the wood.

With twenty-one years' experience in such a trying climate it has been possible to roughly classify the different forms of winter injury, and with the aid of the results obtained by other experimenters to at least offer some suggestions as to how to overcome them. The forms of winter injury which will be taken up are: root-killing, bark-splitting, trunk-splitting, sunscald, trunk or body injury, crotch injury, killing back, black heart, killing of dormant buds, killing of swollen buds. These forms of winter injury were discussed by me in the annual report of the Dominion Experimental Farms for the year ending March 31, 1908.

Central Experimental Farm Exhibit at Niagara District Exhibition
This display won a Wilder Silver Medal. See Page 227.

Convenient Packing Table

W. S. Blair, Macdonald College

One of the most convenient and easily moved tables for sorting apples is that made similar to a folding camp stool. It can be folded together and carried to different parts of the orchard and the apples emptied upon it without bruising, and quickly sorted. The accompanying illustration shows a table of this pattern of convenient size. It is eight feet long by three and a half feet wide on top. The top is made of strong burlap tacked to side pieces made of one and a half inch by three inch scantling. The legs are one and a half inch by three inch scantling bolted together with only one bolt and admit of folding together. The pieces for the legs should be about four feet four inches long, and the table is made solid by strips along the bottom of one inch by three inch lumber. The table when set should stand from two feet eight inches to three feet high. This table is easily constructed by anyone in a short time, does not take up room when not in use, and if properly cared for will last for a long time; it has the additional advantage of costing very little.

The illustration also shows one of the best and generally used round, half bushel picking baskets with swing handle. A basket with a handle that is fastened to the side solid is not good as it cannot be tipped in the barrel. The common galvanized or tin bucket holding about ten quarts is, I find, as good a picking receptacle as any. An "S" hook should be attached to the handle of the picking basket so that it can be hung to the rung of the ladder or to a branch.

Some Convenient Appliances for Picking and Packing Fruit

Orchard Notes

Generally speaking, the best soil for peaches, is a deep, well-drained, light sandy loam.

In what way can fruit growing in your province be made more profitable? State your ideas in a letter for publication in these columns.

Almost any orchard may be benefitted by a certain amount of protection from strong winds. If it is exposed, plant a windbreak.

If you have had any success in some practice connected with fruit growing that you think would be of value to others, tell about it in a letter for publication in THE CANADIAN HORTICULTURIST.

Causes of Failures in Apple Growing in Quebec*

R. Brodie, Notre Dame de Grace

ONE of the principal causes of failure in apple growing is the want of thought,—not studying the various conditions concerned, but taking things for granted and doing these in the same way that our fathers and grandfathers did. Before the Central Experimental Farm was started in Ottawa, it was taken for granted that apple orchards could not be grown for profit in that vicinity, but after years of selection and experimenting with varieties, they have an orchard to be proud of.

PLANTING TENDER VARIETIES.

Losses have been made in setting out tender varieties, not suited to our climate, while profits could be made out of those that succeed well. At the present time, nurserymen in the more favored regions are better educated in the needs of our northern climate than they were, but purchasers need to watch the tree agent with colored pictures of fruit, pleasing manner and high prices. That delicious winter apple, Northern Spy, is counted a hard variety in western New York, recommended there to top-graft tender varieties, but in the province of Quebec, it is not hardy. A sure way of losing money is to plant tender and half hardy varieties.

UNDRAINED SOILS.

Losses are made in setting out trees in soils that are not well drained. A good deal of the bark bursting and winter-killing of trees is caused by the effects of heavy autumn rains, followed by severe winters in undrained soils.

ORCHARDS IN SOD AND PASTURED.

It is admitted that, to grow apple trees successfully, it is best to cultivate, especially for the first ten years. If you want to destroy trees while young, sow grain and seed down to grass. The trees will be stunted in growth, but in all likelihood there will be a good crop of after-grass and clover. At that time of the year the cow pasture is generally bare. You will say, "It is too bad having this grass go to waste, while if I turn in the cows it will increase the flow of milk. There is such a lot of grass the cows won't hurt the trees." What will be the result? Probably half of the trees will be destroyed.

A TRANSPORTATION FACTOR.

Another cause that makes apple growing not so profitable as it might be is the long distance the apples have to be hauled to the nearest railway station or steamboat landing. No matter how much a fruit section is advertised and boomed, if it is far from a shipping point, it will take away most of the profit. In the province of Quebec, the time to dispose of the apples is before navigation closes.

THE LABOR QUESTION.

The labor question at the time of the apple harvest has a great deal to do with the profits out of an orchard. On the Island of Montreal, thousands of barrels of apples are shaken off the trees and filled loosely into waggons that hold about ten barrels, the purchasers coming for them in the orchards and giving on an average of $1.00 a barrel for them. I have heard of box cars being filled up in bulk with Fameuse apples shaken from the trees in other parts of the province. It is too bad that this should happen so near a shipping port.

To make a success of packing and marketing apples, we need co-operative associations with central packing houses like they have in some parts of Ontario. The farmers in Quebec co-operate in the manufacture of butter and cheese; why not in the grading and packing of fruit?

HORTICULTURAL EDUCATION.

Last but not least.—Give the boys the advantage of a good horticultural education, either at the Oka Agricultural Institute, at La Trappe, or at the Macdonald College. There is a prejudice among a few farmers against education in connection with farming. Money is spent lavishly for those studying for professions, while many of the boys that remain on the farm cannot sign their names. The boys should have the advantage of a good education.

*Extracts from an address given at Summer meeting of Quebec Pomological Society at La Trappe.

A Part of the Great Fruit Show Held at St. Catharines Last Month

The extensive display of the St. Catharines Cold Storage and Forwarding Co. may be seen at right background; general display of fruits from farm of Mr. Albert Pay, St. Catharines, at left background; collection of peaches by Wm. Armstrong, Queenston, at end of second table (baskets reclining). These three exhibits won Wilder medals. See page 227.

Blackberry Root Cuttings

John Ferguson, Murches', N. B.

The process of making root cuttings is to dig up the entire plant, securing all the roots possible over one-eighth of an inch in diameter. These should be cut into pieces, two or three inches long, and should be planted in broad rows, somewhat as peas are planted, covering about two inches deep. Before severe freezing weather sets in, the bed should be covered with five or six inches of strawy stable manure to prevent deep freezing. In the spring the covering is raked off, and by the middle of June the rows will be studded over with buds coming from every piece of root planted. These plants are much better than the "sucker" plants because they have large numbers of fine fibrous roots and are much more sure to live and make stronger canes.

Apply a dressing of barnyard manure to the patch in late fall or very early in the spring. If no disease attacks them, blackberry plants will, with good treatment, live and bear fruit for ten or fifteen years, much of course depending upon soil and cultivation.

Fall Work with Peonies

P. G. Keyes, Ottawa

FROM September 15th to October 15th is probably the best time to plant peonies or to divide old plants in order to increase our supply. Almost any soil will give satisfactory results if it be not so low that the water will remain on the surface during the winter or spring. Choose a situation away from the roots of trees, but fairly good success may be had in partial shade. Trench the soil to a depth of at least two feet before planting, and work in a good quantity of old manure. See that this is well mixed with the soil, as the peony like all other plants resents the direct application of manure to its roots. This trenching is better if done two or three months before the planting season.

Set the root so that the upper eyes are about three inches beneath the surface of the soil. The plants should be set about three feet apart and if in rows the same distance will answer very well.

Although the peony is hardy anywhere and needs no protection, an inch or two of well rotted manure may be thrown over the crowns in November *after the ground is frozen*, and the tops of the plant have been cut off level with the soil. This should be removed early in the spring, but it may remain around the plant and serve as a mulch during the summer, or it may be forked into the soil. If forked in mulch the surface around the plant with some fresh strawy manure, as this will serve to keep the ground moist and cool — conditions which exactly suit the peony.

Plantings may be left undisturbed for years if the soil is occasionally enriched. Typical blooms must not be expected the first year after transplanting; as a matter of fact, few plants such as are sent out by nurseries bloom in less than three years. I am pleased to see manifested a growing interest in these beautiful flowers and hope that we may soon be able to form a Peony Growers' Association for Canada.

Have the Garden Effective All the Year*

D. W. Buchanan, St. Charles, Manitoba

TO those who wish to have a good flower garden with an abundance of bloom for the longest possible season, I would say, indulge liberally in the hardy perennials. There are many species and varieties of these rugged plants that are quite hardy in the west. The severe cold of our steady winters seems more favorable to these hardy plants than the freezing and thawing that they are subjected to in milder climates. We have left our perennial flower plots unprotected, save for the covering which nature provides in the snow, for several years past, and have not suffered any severe loss from winter killing.

I have a record of the date of coming into bloom of hardy perennials growing in the grounds of the Buchanan Nursery Co., at St. Charles, near Winnipeg, for the season 1908. This record shows that the earliest species and varieties were in bloom about the end of April, and some late varieties were still making a good show of bloom in October. This shows a season sufficiently long to make a good flower garden a thing worth striving for. But the flower garden is not everything. In undertaking to beautify the surroundings of the home, and especially the rural home, where abundant space affords opportunity for spreading out, trees, shrubs and vines should be used liberally. We cannot have the flowers blooming outdoors in the winter in our climate, but by a judicious use of shrubs and trees, we can produce pleasing effects for all seasons of the year and make the garden or the home surroundings beautiful even in mid-winter.

Some people may smile at the idea of planting for winter effect in our climate. Granted, that when the thermometer is away down below zero, we are not likely to linger outdoors to contemplate landscapes or artistic effects in planting, but after all, the really severe days of winter are few. Even in the depth of winter there are many days on which a ramble in the wood or a stroll about the grounds can be enjoyed, and in prolonged spells of severe weather, a pleasant view from the window is a thing to be desired. Then we have the early spring and late fall seasons, before verdure has appeared, or after the flowers are gone, during which there are many pleasant days to be about the grounds.

FOR FOLIAGE EFFECTS IN FALL

For fall or autumn effects, pleasant views may be created by giving attention to the coloring of autumn foliage. When Jack Frost has touched the leaves with his magic wand, many of our trees and shrubs take on a richness of coloring that is hardly equalled in beauty by the fresh foliage and flowers of spring and early summer. There are other shrubs that hold the green leaf until very late in the season. Of the shrubs whose foliage is particularly attractive in the fall we may mention, among others, the beautiful Ginnala maple. The coloring of the foliage of this plant will vary in individual specimens. Some will be found beautifully tinted quite early in the season, increasing in richness as the season advances, until the little tree at a distance resembles a scarlet mass. The foliage of the Virginia creeper is nicely colored in the fall, but the leaves soon fall. Another shrub that may be mentioned in this connection is the Japan barberry. This is a beautiful little foliage plant all summer, but especially beautiful when it has taken on its rich autumn coloring. This plant also holds its foliage well. Our native plum, and also the Sheep berry (*Viburnum lentago*) have finely colored foliage in autumn. The Russian olive holds its leaf late in the fall, its light color blending nicely with the rich coloring of surrounding trees. This shrub or small tree gives a fine effect all summer if planted among the green leaved trees, its silvery foliage showing in fine contrast with the green. In the fall the foliage takes on a lighter shade. Of plants that hold the green leaf late in the fall we may mention the common lilac, buckthorn and Amur barberry. The purple leaf barberry also retains its leaf well on in the fall, the color becoming more of a brownish shade as the season advances.

Colorado Blue Spruce
An excellent subject for winter effect.

When Christmas comes you will wish that you had potted some bulbs in October. Do not procrastinate. Send at once to seedsmen that advertise in THE CANADIAN HORTICULTURIST, and get their catalogues.

*Extracts from an address delivered at a meeting of the Western Horticultural Society. In a later issue, that portion of the address that deals with planting for winter effect will be published.

Conservatories for Amateur Horticulturists

R. W. King, Toronto

THE average conservatory attached to a dwelling is an expensive luxury that only the wealthy can afford, or it is a failure for the purpose for which it was originally designed.

The Home Conservatory of an Amateur Horticulturist in Toronto

This cut and accompanying plans were furnished by the King Construction Company, Toronto.

As as expensive luxury it has been designed by some architect, not a florist, whose main interest is in its architectural appearance. It must be a handsome addition to the dwelling and treated architecturally to correspond. Rounded glass and circular sashes are usually necessary to obtain the desired effect. These add seriously to the cost and if for economy the rounded bars are made of wood they have to be so heavy as to seriously obstruct the light that the plants require, more especially in winter. The side woodwork, consisting of the eaves, mullions and sash frames, are usually made too heavy while the proper position of the conservatory as regards light is often a minor consideration.

An order recently given an expert when criticising the position in which he was asked to design an expensive conservatory, stated in imperative terms: "Put it right there; I am building a house, not a conservatory"; consequently, this conservatory, though proportionately expensive with the house, is only a pretence as far as a suitable place for the growing of flowers or plants is concerned. To make a suitable show, in order to keep up appearances, the plants and bloom found in such conservatories are usually grown elsewhere.

When an amateur wants a conservatory mainly for purposes in trying his hand at plants or flower growing, there is no better place to put it, if the house stands right, than in the back yard. There one can have a conservatory at the cheapest cost and as near as possible what the amateur horticulturist wants; namely, a place not for show purposes but one wherein he can experiment regardless of appearances and as far as possible be on a par with the professional grower, whose main consideration is to obtain efficiency and to avoid burdening his enterprise with useless and unnecessary expense.

The photograph reproduced in the accompanying cut is taken from a view that can be seen any time from the Hamilton train, G. T. R., when approaching Toronto from the west, and is published by kind permission of the owner, Mrs. Miller of Springhurst Avenue, Toronto. The dwelling houses shown are a pair of semi-detached. Originally the porch belonging to the section to the right was the same as may be partly seen to the left of the picture. In building the conservatory the porch was first carried up forming an outlook from which a pleasant view of the lake and garden, in which the lady takes much pride, could be seen.

The building up of the porch to form the outlook enabled the conservatory to be carried up a sufficient height to give ample head room under the sash. The porch also protects the glass from the falling of snow and ice from the roof of the building. It forms also a potting shed or service building for the conservatory, keeping the latter well back and more out of the shade of the dwelling. To avoid overshading by the fences

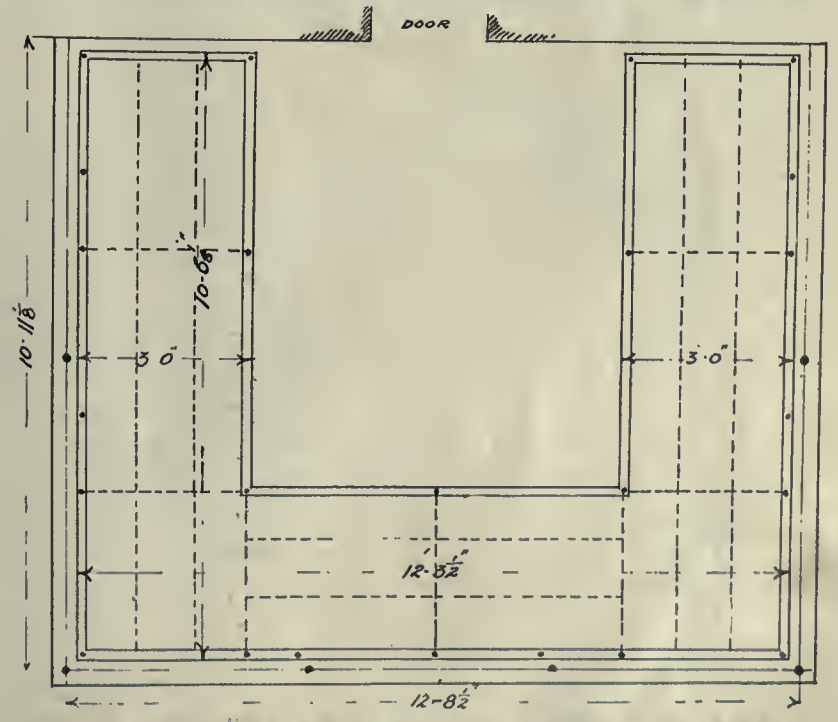

Fig. 2. The Arrangement of the Benches in Conservatory Illustrated on This Page

at the sides, the glass of the conservatory and the benches inside is well elevated. Fig. 1 is a sectional elevation of the conservatory. Fig. 2 is a plan in which the disposition of the benches is shown and explains itself.

The heating is by hot water pipes not shown in the plans. The main pipe is carried round the house above the benches and at the front runs immediately under the eave inside the house so as by heating the steel gutter to keep it clear of snow and ice. The drainage passes down the pipe posts inside the house to an underground drain connected with the house drain. By this arrangement no icicles are formed on the eave and the roof quickly clears itself from the winter snows. The balance of the heating is done by pipe coils under the benches in the usual manner.

A separate boiler is used for the heating and is placed in the basement of the dwelling house. Independent connections are made to the kitchen hot water tank so that the boiler can be used to heat water for household purposes, which is specially convenient in this instance, the boiler being placed beside or convenient to the wash tubs. It also assists materially in the heating of the dwelling. It appears from a season's trial that an additional three tons of coal to the usual winter supply is sufficient to heat this conservatory in the manner described.

Commence now planning for next year's garden. Many things that require changing may be noticed now.

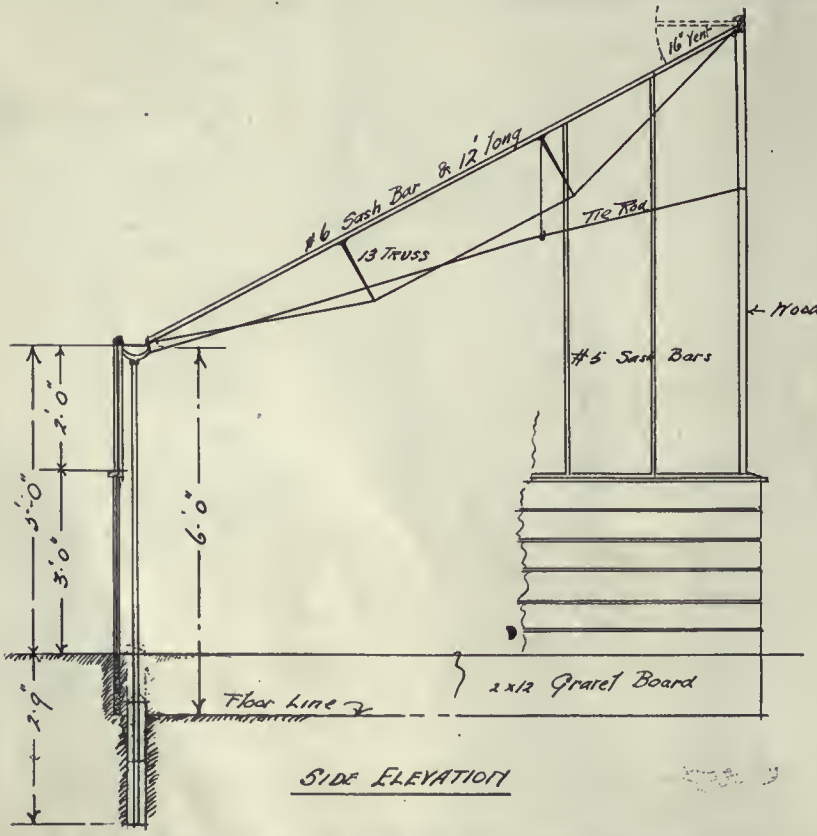

Fig. 1. Sectional Elevation of Conservatory Described in Accompanying Article

Making New Lawns in Fall

R. L. Canning, Earlscourt, Ontario

THE season is upon us once more when our lawns will have to be taken in hand. The past summer has been a very trying one for all lawns and grass plots in general, and it has been a test whether a lawn has been true and well laid or only half done, or in other words just squares of turf laid down on unprepared ground.

To those about to make a lawn for next year's use, now is the time to take the work in hand, and start in earnest. It should be borne in mind that a well-kept lawn or grass plot, is a thing of joy and beauty, and no pains should be spared to make it perfect.

When a site has been selected, the first thing essential to the making of good grass is the drainage. Be sure on that point. If the land is naturally heavy and soggy or retentive, it will be a bog after a rain storm. Place drain pipes about two feet under the surface and let them lead to a drain or outlet. Grass loves lots of moisture, but excessive dampness means the rotting of the finest grasses and textures, and a predominant growth of the rankest kinds of grass.

To ensure success, dig the ground to the full depth of a spade or even a foot deep, mixing in and well incorporating a good and copious supply of well rotted manure. Break the soil up finely while working the ground to ensure evenness when completed.

If the ground is sandy and light, mix in a proportion of clay where possible; if heavy, mix with sand when digging. This will modify extremes.

If the ground is to be laid with turf, see that the ground is true and level and free from roots of all kinds and particularly dandelions. Lay the turf even and well, making the joints fit perfect. Beat well with a beater or with a spade "back on" and when finished roll thoroughly. If any little spaces remain fill up with fine soil, and level with the back of a rake.

In the spring time examine closely the new growth in the turf for any weeds and eradicate them by going down on your knees and with a knife dig them up. Afterwards fill the holes with soil and sow with grass seed.

A good and permanent lawn should be raked in the spring with an iron rake and the rubbish and dead grass cleared away and seed sown evenly all over. Birds will be troublesome for a few days, but sow the seed rather thickly. When it is up and strong, roll well and pack the edges on the walks, and then edge with a good sharp edging iron.

When ready for mowing care must be taken not to have the knives too close for the first few mowings. Go easy for a time and let the grass grow so as to have a firm root hold.

If the ground is to be sown with seed let it remain until the spring. As soon as the ground is in a fit condition to receive the seed, level off with a rake and make it as fine as possible. Sow the seed broadcast evenly and thickly, as birds may be troublesome. When the seed has taken root and is well up, look for any bare patches and sow at once, slightly scratching the soil with a rake to freshen up the surface. Follow the same course as advised for the turf laid lawn, and roll well. Look out for weeds and dandelions and root them up while they are small. Don't forget that the more the grass is rolled in spring the firmer it becomes; it will not be soft and springy, and it will stand the dry weather much better.

A little judicious management will ensure a perfect lawn and the trouble taken at first will be well repaid by having a beautiful green sward. A splendid help to jaded grass is an application in the spring of a little nitrate of soda sown broadcast *very* thinly just before a rain. The results are astonishing.

Take an interest in the work of your local horticultural society.

Photograph the garden, or a portion of it, when it is at its best, and send same for publication in THE CANADIAN HORTICULTURIST.

Preserving Bulbs and Tuberous-rooted Plants

J. McPherson Ross, Toronto

IN our rigorous climate so little labor is required to house and winter any bulbs and tubers that need such care that it may be summed up in one line: "When the tops are killed with frost, dig and store in a dry frost-proof cellar." The advice given to winter successfully bulbs and tubers, may be applied also to our other garden favorites as *Caladium esculentum*, fuchsias, yuccas, agapanthus, oleanders and water lilies.

As most residences are heated with furnaces or hot water there is little danger from frost. Where the cellars are so heated, the only danger would be from over-dryness. It would be safer to store all bulbs and tubers in boxes filled with sand or sawdust or else dig the roots up, leaving all the soil on them, and place in boxes, looking them over occasionally in winter and watering when too dust dry.

The four extremes to be avoided are too hot, too cold, too wet, and too dry. If a proper medium is observed in these extremes very little art is required to winter anything.

GLADIOLI

The first bulb to speak about is the gladiolus. The bulbs or corms of this plant are easily preserved during winter. After the first frosts in October, they may be dug any time during the month, cutting the stalks off close to the bulb, and storing them on shelves or trays in any cool cellar or convenient place that is free from frost. This truth holds good for all the bulbs and tubers,—be sure and keep *free from frost.*

Having gathered your stock and piled them loosely in trays to a depth of four or five inches, no more, they may remain there until such a time as will be convenient to clean and sort them; that is, to remove the cormels or small bulblets and the old bulbs, sorting the young strong bulbs back into the trays, properly labelled, so as to have them ready for spring planting. It is recommended to keep the small bulblets dry for the year without planting as it is stated they will do better than if you plant them. Where there are only a few bulbs, many gardeners just cut the stalks about six inches long, and tie them into a bunch, and hang them up on nails in the potting shed like onions.

DAHLIAS

Where the gardeners have a greenhouse, the usual place for storing dahlias is under the benches. After the frost has cut the foliage down, cut the stalks off within six or eight inches of the crown of the tubers and dig them. I usually leave them on the top of the ground, just as they are dug and, if the weather is not too severe, leave them out for a day or two to harden and dry, then remove them into the cellar or greenhouse. The best stock advice to amateurs about keeping dahlia tubers is, "Wherever potatoes will keep safely so will the dahlia." The proper temperature is about fifty degrees. Any warmer than this is apt to start growth, although a little of this will not matter.

If you have many, you may store them in heaps of two or three deep with the soil all shaken off. Keep them dry and not too damp. If you have only a few tubers, a good plan is to pack them in sand and towards spring overhaul and divide them into suitable sizes for planting.

CANNAS

The next important summer flowering plant is the canna. This plant being a native of India, is a tropical plant and requires more care than the gladioli or dahlia and, if kept at a lower temperature than forty or fifty degrees, they are apt to rot, particularly if too damp. If kept too warm they are apt to grow like the dahlia, although a little growth will not hurt them; still they are better dormant. They should be stored in the warmest corner of the cellar, out of draught, leaving the soil on the clumps as they come in, or they may be kept covered with sawdust in boxes a couple of feet from the ground, as the dampness and coolness of the soil is apt to rot them.

It is a good practice after the frost has cut down the foliage to leave them for a week in the ground to ripen the tubers. Some of the more valued sorts should be potted and kept in the semi-growing state all winter. You can hardly keep them too warm and there is no difficulty in keeping them safe under dry benches in the ordinary greenhouse.

Towards March they may be divided and potted or placed on benches to start into growth to have them fairly well advanced for outdoor planting about June 1st. Some of the growers have convenient bins for them under the benches, shaking all the soil off and piling them two or three feet deep. An occasional turning over arrests the growth and keeps you in touch with the condition of the plants.

TUBEROUS BEGONIAS

Tuberous begonias are coming into such general cultivation and are such showy free flowering plants that I expect to see a more general and increasing use made of them in our flower gardens. Although commonly supposed to flourish only in partially shaded spots, I have seen some fine beds of them fully exposed to the sun. They thrive finely and give great satisfaction when they have light, rich, spongy soil and are kept well watered.

When frost comes remove them into boxes and let the soil and tubers dry together. Keep them at a temperature of fifty degrees and pot early in spring for planting outdoors. I have planted the tubers right out in the garden but this throws them a little too late. The flowering season is altogether too short as it is.

There are a few more plants that I might mention, both bulbous and herbaceous, but such advice as given for cannas and dahlias will apply to the rest. Lilies and all members of the lily tribe in the borders should receive a bountiful mulch of leaves or long manure to preserve them from too severe freezings. Keep the bed well rounded up to insure free drainage. You cannot have the flower border too dry in winter.

A Prince Edward Island Garden and Orchard
At home of Mr. J. E. Lapthorn, Charlottetown.

When manure, leaves or other litter cannot be had conveniently, a top-dressing of soil three inches deep dug from the side of the bed and spread evenly over the tops of plants is beneficial. It prevents upheaval in stiff soils from frost and does good all around.

Send for bulb catalogues of seedsmen and get the best varieties for planting both outside and in the house.

When sending photographs that you want returned, write on the back of them to that effect. They will be well cared for, and returned as soon as used.

Lawn and Garden Hints for October

EVERYTHING that is accomplished this month is so much towards the gardening of spring. Gather seeds of poppies, cosmos, calendulas, marigolds, and other annuals that you marked earlier in the season for seed gathering. Keep each kind of seed in a separate box or bag properly labelled. Store in a dry place.

Plant tulips, hyacinths and narcissi. Place the bulbs three or four inches deep and firm the soil over them. Later on, the beds should be covered with a mulch of leaves, straw or other coarse material.

New beds for flowers next spring may be prepared now. Dig the ground deeply and remove all stones and rubbish. Dig in plenty of manure.

Enrich the soil of poor beds and borders where the plants have not flourished as well as they should have done. Work in a good coating of manure. The manure may be left on the surface until the spring and serve as a winter protection but, in this case, it should be applied only after the ground is frozen.

Herbaceous plants may be divided and transplanted. Plant new, hardy perennials. Old lily clumps may be renewed by dividing and replanting.

Dig canna roots before being frozen and place them in a shed for a week or two to dry, then store them for winter in a temperature of about 45 degrees.

Dig dahlia roots, allowing a little soil to adhere to them. Cut off the tops at a point about six inches above the tubers and place the clumps in an airy place until dry, then store them. They may be kept in a cooler place than that selected for canna roots.

Gather the corms of gladioli. Dry them off partially and store in a fairly dry cellar where the temperature is about 45 degrees. Tie them in bunches to the joists or place them in paper bags.

If you have oleanders, pot roses or fuchsias that are to be consigned to winter quarters, harden them off first. Do the same with pot hydrangeas.

Frost-killed annuals should be removed, roots and all. Burn them to prevent a recurrence of the insects and diseases next year.

Clean the garden, collecting all stakes and other things of like nature. Store them. Rake the leaves off the lawn, and put them on the compost heap. Look after the tools that will not be needed again this fall. Clean them, coat with oil and store them in a safe place. Have on hand a supply of spruce boughs, straw or strawy manure for protecting the bulb beds and any plants that may need it. Secure and prepare potting soil for use in winter. Top-dress the lawn.

FLOWERS IN-DOORS

Pot house bulbs. Place them in a dark place for six weeks or more. When the pots are well filled with roots, bring them to the light. Freesia bulbs may be placed in the window at once.

Grow China sacred lilies, paper white narcissus and some varieties of polyanthus narcissus in stones and water in a glass dish. Select strong bulbs for the best results. Hyacinths may be grown in special glasses that can be purchased for the purpose. Allow the water to rise only half way up the bulb. Keep the bulbs in a cool place until well rooted. Change the water every three or four days.

Re-pot ferns and palms that may need it. Remove some of the earth from the roots and place in fresh soil in pots slightly larger.

Bring in the old geranium plants from the garden and prune them back severely. Pot them in sand and a little deeper than they stood outside. Place them in the cellar until early in February, then re-pot in good potting soil and bring to the light.

IN THE KITCHEN GARDEN

Harvest the squashes, pumpkins, melons, cucumbers and such crops at once, if they have not been injured by frost. Store in a shed that is cool and dry, but frost-proof. When harvesting leave a couple of inches of the stem to prevent rotting.

Break down the tops of asparagus as soon as dry. Rake together and burn. Work into the soil a top dressing of manure.

Bank the celery wth earth if it still needs it. Most celery should be stored by the end of the month.

Pull and store cabbage, carrots, parsnips and such crops and put at once in the cellar. Root crops will keep better if covered with earth. Some parsnips and salsify may be left in the ground over winter for use next spring.

To have a winter supply of parsley, dig some of the roots and plant them in a pot or box and place in a light cellar or shed where the temperature is not too cool.

Home-grown raddish and lettuce may be had for Christmas by sowing the seed in a mild hotbed. Watch the plants carefully, and protect against heavy frosts and freezing.

The old rhubarb patch may be renewed by taking up the roots, dividing them and setting new patches. A few roots may be forced in the cellar before taking them inside. Leave them on the surface of the ground after digging and until they freeze, then place on the floor of the cellar or in a barrel where they will produce tender juicy stalks for winter use.

Why not make a mushroom bed in the cellar? This is an interesting subject to grow and, if you are not successful, what's the odds? Your experience may bring results next time. There is no mystery about mushroom culture. The success of teh operation depends upon strict attention to the details of making and caring for the bed. Send questions to our question and answer department.

If you intend to have a hotbed next spring, now is the time to make preparations. Purchase or make the frame. Store some rich garden soil for use when the time comes. If you purpose making an excavation, better dig it now. Fill the excavation with straw until spring, when this can be removed for the reception of the manure.

Photographs of first prize gardens and lawns that won in horticultural society competitions, are wanted for publication.

Plant some bulbs this month for bloom next spring. Recall to mind the brilliant displays that you saw last spring and plan to have one as good on your own lawn next year. Bulbs are easy to grow. For best results they should be planted right away so that a good root growth will be produced before the ground freezes. Choose early and late kinds for bloom over a long period.

Some of the Vegetables at the Niagara District Horticultural Exhibition at St. Catharines

Growing Squash in Saskatchewan

Brenda E. Neville, Cottonwood

OF the varieties of squash that can be grown in this province I have found that Long White Bush Marrow leads the list. Next comes the Red or Orange Hubbard squash, and the

Some Saskatchewan Squashes

Green Hubbard is not far behind. Citrons, cucumbers and the common yellow field pumpkin must all be treated in much the same manner and may be expected to yield fairly well.

We are subject to late spring frosts in this country. As the seeds of all the squashes rot easily with cold weather, we must wait until the ground is quite warm. We must also wait until there is no danger of the young plants freezing. The last spring frost is usually on the night of the first full moon in June. As the squash seeds take about eight days to germinate, they may be sown about that length of time or a few days less, before the said full moon.

Select a well-drained plot, with soil that has been deeply worked, and is as free as possible from cut worms. Mark out your hills about four feet apart. As each hill will be two feet square, allow six feet from centre to centre. With a spade, dig out square holes two feet square and eighteen inches deep. Throw the soil in heaps on the north side of the holes.

When the holes are all dug, go to the stables and secure fresh horse manure free from straw or litter; in fact, just such manure as you would use for a good hotbed. Fill each hole one foot deep, or if possible fifteen inches, packing the manure tightly and making it perfectly level or slightly dished in the middle. Put a pail of water in each hole unless the manure is already very wet, or the weather is cold and damp. Fill in on top with earth, being careful not to raise the hill above the level of the surrounding garden.

Plant the seeds at once. The heat from the manure will be just sufficient to cause the seeds to germinate quickly. I usually plant at least ten seeds in a hill.

It is a good idea to place a stove-pipe or bottomless pail filled with manure in the centre of the hill. Then plant the seeds in a ring around it. Another device is to fill the hole with manure, then place a bottomless box slightly smaller than the hole, on the manure; fill three or four inches deep with earth, and plant the seeds. In both cases, the idea is to enable one to pour on each hill a large quantity of water every day, without wetting the earth that is next to the stems of the plants. Water poured on the manure in the pail, or on the manure outside of the box, will soak down to the roots without baking the surface.

We have no honey bees in these parts. (They can be kept where shelter has been established). When flowering time comes daily watchfulness is the only chance for a good crop. About ten o'clock each morning the vines should be visited, and every pistillate flower must be carefully inoculated by hand with pollen from the staminate flowers. The kinds of flowers are easily distinguished. The pistillate flower has a tiny squash at its base, while the staminate flower has not.

It is safest to gather all squashes before the least frost comes. However, ripe squash will stand some frost and when the vines are frost-bitten all the fruit can be gathered at once. Stored in a dry place, Hubbard squash will keep for months and marrows and citrons will keep a long time.

Easterns may at first despise their big yellow pumpkins, but a good ripe pumpkin is a curiosity in the stores here. In 1905, I sold one to a grocer. He placed it on his counter and sold it in slices like a watermelon. That pumpkin brought me eight cents a pound. Hubbard squash are hardly ever seen, but cucumbers, citrons and marrows are grown quite commonly. These vegetables can be grown on a new farm, where fruit bushes have not yet been established. They almost all make delicious preserves so they are especially valuable to new-comers.

Uses of Ginseng

Of what use is ginseng and where can it be sold?—W. P., Nelson, B.C.

Ginseng is shipped to China. The Chinese seem to place the highest value upon it as a medicine. They consider it a cure for almost every ill of mind and body. They use it also in their religious rites. To find out its exact value to them is rather difficult as they are reticent on the subject but the fact that they are willing to buy all that we can grow and pay good prices is what interests us most. It is said on good authority that they would buy twenty times more each year if it were available. Ginseng is not a perishable crop, like grapes and strawberries. When dry it becomes staple, like tea, spices and tobacco. It will keep for years.

Outside of the money that may be made out of vegetables, there is a place for them in the home garden for the home table.

Questions of local importance in contemplating the cultivation of vegetables for commercial purposes are the cost of transportation to market, whether by rail or by road, and whether the available markets usually pay good prices for garden crops.

Display by Ontario Vegetable Growers' Association at Canadian National Exhibition, Toronto

The Canadian Horticulturist

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The Only Horticultural Magazine in the Dominion

OFFICIAL ORGAN OF BRITISH COLUMBIA, ONTARIO QUEBEC, NEW BRUNSWICK AND PRINCE EDWARD ISLAND FRUIT GROWERS' ASSOCIATIONS

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January, 1908	7,650	January, 1909	9,456
February, 1908	7,824	February, 1909	9,310
March, 1908	8,056	March, 1909	9,405
April, 1908	8,250	April, 1909	9,482
May, 1908	8,573	May, 1909	9,172
June, 1908	8,840	June, 1909	8,891
July, 1908	9,015	July, 1909	8,447
August, 1908	9,070	August, 1909	8,570
September, 1908	9,121	September, 1909	8,605
October, 1908	9,215		
November, 1908	9,323		
December, 1908	9,400		
Total for the year	104,337		

Average each issue in 1907, 6,627
Average each issue in 1908, 8,695
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THE CANADIAN HORTICULTURIST,
PETERBORO, ONTARIO.

EDITORIAL

FRUIT AT CANADIAN NATIONAL

There is still room for an improvement in the fruit department at the Canadian National Exhibition. No exhibition in Canada affords greater opportunity for advertising the great fruit industry of Ontario and its possibilities. While thousands and perhaps tens of thousands of people may visit other exhibitions, hundreds of thousands, representing nearly all countries of the world, visit the Canadian National. In view of this fact, the fruit show is utterly inadequate, not in excellence of the specimens shown, but in extent and in the method of display. There is little that is attractive about it. The general public is impressed, favorably or unfavorably, by the effect of the display as a whole, not by the quality of the individual fruits. Something should be done to make the fruit show an outstanding feature.

We would suggest that the co-operative fruit growers' associations of the province be asked to make display exhibits of fruits packed in boxes. The Exhibition can well afford to offer liberal inducements for them to do so. These exhibits could be placed uniformly on a sloping stage, made to accommodate four boxes in height, and built all around the fruit wing of the horticultural building. A grand display of this kind would greatly impress the visiting masses and would prove a world-wide advertisement of Ontario's fruit industry.

HOME FRUIT CULTURE

In its desire to develop the love for and the interest in the ornamental features of home gardening, the Ontario Horticultural Association should not let its interest wane in fruits and vegetables. Much good work can be done by this association in encouraging the culture of fruits and vegetables by amateurs. The name of the association implies all of these things but there is a tendency on its part to confine its work and influence only to the ornamental.

There is a satisfaction in growing fruits not only for what they may bring or save in money, but simply because they are fruits. The commercial fruit grower is allowing business to supplant this. Sentiment in fruit culture is a legacy that is gradually being left by commercialism to the amateur. The growing of fruits for the love of them is rapidly becoming a thing of the past. This was pointed out in an able address by Dr. L. H. Bailey at the recent conference of the American Pomological Society that was held at St. Catharines, Ontario. Dr. Bailey deplored the growing lack of sentiment and of real horticultural spirit in the fruit grower. The point was well taken but the commercial fruit grower of to-day considers dollars more than sentiment. It is left to the amateur, who grows things not for profit but for pleasure, to hold what may be lost.

Every home garden should have a place for the growing of one or more kinds of fruits. One reason why fruits are not planted more often by amateur horticulturists is because their culture is not known by many of these persons. It is within the province of our amateur horticultural organizations to teach them. The Ontario Horticultural Association should not neglect this phase of its work. It should continue the interest in home fruit growing that was promoted by the Ontario Fruit Growers' Association until the amateurs formed the afore-mentioned organization for themselves. A part of the programme for the November convention could profitably be given to the consideration of topics that deal with fruits and vegetables. Let the good work embrace not only the strictly aesthetic but also those features of gardening that are equally useful, and sometimes more appreciated.

VENTILATED APPLE BARRELS

The lesson learned last season from the disastrous results that followed the shipping of apples that were packed in the extremely hot weather, has caused a number of Ontario shippers this year to use ventilated barrels for summer and fall varieties. The fact that it has been shown by experiment that it takes between six and seven days to cool to the centre of a barrel of apples packed in warm condition in air tight barrels, shows the uselessness of expecting much benefit from using refrigerator cars between points in Ontario and Montreal. Ventilated packages should go hand in hand with refrigeration unless the fruit has been cooled before being loaded.

The ventilation should be in the sides of the barrels, not in the ends. Holes bored in the staves, will answer the purpose, if the holes are not too large, but they make the barrel appear unsightly. The better plan is to make small slits on the edges of the staves, say, four in a stave and in every fourth stave, making sixteen openings in a barrel. This can be done by using a two-inch gouge before the barrels are made. As the demand for the ventilated barrels increases, this work could be done by machinery when the staves are being manufactured.

Thousands of barrels of Canadian apples shipped to Europe last season did not return to the shippers a penny a barrel through the heating of the fruit picked and packed in warm weather. Much of this loss would have been prevented had ventilated barrels been used.

The visit of the American Pomological Society to Canada was an event of more than ordinary importance. The papers read and discussed at the meetings, the excursions throughout the Niagara district and to Guelph, and the inspection of the great horticultural exhibition held at St. Catharines, will result in much good to our fruit industry and to our country. While the excursions and exhibition were chiefly "Niagara district" in character, we believe that all Canada will be benefitted by the good things that the members of the society had to say about us and which they probably will tell to others. Canada was honored by the society in making St. Catharines its meeting place for 1909.

The action of the directors of the Ontario Horticultural Association in deciding by resolution at a recent meeting to ask the provincial government to increase the grant to horticultural societies by $5,000, is commendable. As stated editorially in our last issue, the progress of horticultural society work demands an increase in the grant at once. While the passing of a resolution to this effect by the directors should help materially to secure the increase, the agitation should not stop there. Each local society should exert itself in the matter. They should impress the need upon their local members of the legislature and ask them to use their influence in having the necessary sum voted at the next session.

The fruit division at Ottawa deserves the thanks of fruit growers in Ontario and eastwards for occasionally bringing experts

from British Columbia and the Pacific states to demonstrate their methods of packing in boxes. It is expected that the demonstrations and addresses by Mr. F. G. Earl, of Lytton, B.C., who has been in Ontario and the maritime provinces this fall, will be productive of much good. While only a few localities can be covered by one man, the lessons learned at these will radiate to surrounding districts.

Important Pomological Problems Discussed

ORCHARD cultivation, varieties, packing and packages, sulphur sprays and many other important topics were discussed at the 31st biennial conference of the American Pomological Society, which was held at St. Catharines, Ont., on Sept. 14 to 17. The coming of this society to Canada was an honor and a benefit to the fruit industry and the fruit growers of this country. It was a business conference from start to finish. Delegates were in attendance from all parts of the United States and a few from Ontario and Quebec. A larger local attendance was expected but exceedingly hot weather at the time of the conference caused peaches on farms in the neighborhood of St. Catharines to ripen so rapidly that the growers could not leave their farms.

The programme covered a wide range of subjects. Space in this issue of THE CANADIAN HORTICULTURIST will not permit a detailed report of all the addresses and discussions. Only a few of the most important can be mentioned this time.

DR. BAILEY'S MESSAGE.

At the opening session, Dr. L. H. Bailey, of Cornell University, delivered a powerful address on "The Satisfactions in Raising Fruits." The speaker pointed out that in the hustle of commercial fruit growing we are apt to forget the old spirit of horticulture, when men grew and studied fruits for the love of them. He referred to the work of leading horticulturists of days long gone by, and of days but recently past. He spoke of the admiration that we should have for good fruits and good fruit trees. We must have an intellectual interest in these things. His message was all the more necessary, he said, because we are so immersed in the affairs of this busy and commercial time. He pleaded for the cultivation of those qualities of mind that find an intellectual satisfaction in fruits because they are fruits. When we have the spirit of the amateur, combined with the busy zeal of the commercial fruit grower, we will then have the full man.

DEMONSTRATION ORCHARDS.

At one of the sessions, Prof. F. C. Sears, Amherst, Mass., told of "Demonstration Orchards for New England." He emphasized the importance of correct methods of demonstration. He referred to the model orchard plan in Nova Scotia. The area of these is only two acres, which the speaker said should be enlarged to 10 acres, in cases where similar orchards are required for demonstration work on a commercial basis. Some of the lessons that can be taught by these orchards are: 1, Proper methods of laying off and planting the orchard; 2, proper methods of pruning; 3, right kinds of fertilizers and how to apply them; 4, how to prepare and to apply spray mixtures; 5, cultivation and the use of orchard implements. Demonstrations should be carried on for at least 20 years in the same orchard.

"Commercial Demonstration Orchards in College Work" was dealt with by Prof. W. S. Blair, of Macdonald College, Que. He stated that, as the college orchard had been planted only a short time, not many results can yet be given. One example of the value of the work was mentioned in the case of some experiments in different methods of cultivation. In a plot where the sod had not been disturbed, a moisture determination showed the soil to contain 6.11 per cent. of moisture; in the mulched plot, 16 per cent.; and in the cultivated plot, 20 per cent. The college is investigating the influences of covered crops on winter injury and on the ripening of wood.

FRUIT PACKING AND MARKETING.

One of the sessions was devoted to fruit packing and marketing and was in charge of Mr. A. McNeill, Chief, Fruit Division, Ottawa. The chief referred briefly to the co-operative fruit growers' associations of Canada. He said that the best one is the St. Catharines Cold Storage and Forwarding Co. There has been much progress in co-operation in the past 15 years. "Box Packing" was dealt with by Dr. S. W. Fletcher, of Blacksburg, Va. A paper on Co-operation in Fruit Products" by Mr. J. B. Dargitz, Campio, Cal., was read at the meeting. Robt. Thompson, St. Catharines, also discussed this question. These will be published later.

In a paper on "Co-operative Marketing," Mr. W. H. Reid, of Tennent, N.J., told of an organization in his state, only one and a half years old, which has been most successful. He cited an instance where the organization had prevented a crash in the market. On July 30th, the manager had 35 cars of potatoes on the track and for sale. He knew from reports of the conditions in New York that there was danger of breaking the market. To prevent this he told

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the agents of the organization in the various localities to ask the members to stop digging. He shipped 22 cars and held the remaining 13 for two days, when they were sold profitably and the market sustained. This organization has increased prices all around and has made the local buyers come up. In the year's work, notwithstanding some mistakes, drawbacks and losses, the receipts increased wonderfully. Potatoes and apples are handled chiefly. These are distributed where the demand is, regardless of nearness to market.

SULPHUR SPRAYS.

One of the most important subjects dealt with by the society was "Sulphur Sprays." Various members discussed it. One of the most valuable papers was contributed by Mr. W. M. Scott, Washington, D.C. This was read by the secretary in the absence of the author. Mr. Scott pointed out that the self-boiled lime-sulphur will soon become almost, if not quite, as indispensable to the peach grower as Bordeaux mixture is to the apple grower. The main reference of the paper was to the use of the lime-sulphur as a summer spray. The results of experiments conducted by Mr. Scott and his assistants this year, in the Hale orchards of Georgia, increased the yield of merchantable fruit by 100 per cent.

In fighting the brown rot the curculio must also be controlled. This insect punctures the skin and admits the fungus in spite of all spraying. The self-boiled lime-sulphur in combination with arsenate of lead is a complete remedy for the curculio, the brown rot and the peach scab.

The writer showed by examples that sprayed fruit brings the highest prices. The difference in market value was due to the fact that the sprayed fruit showed less rot, was more highly colored, and had a better appearance in all respects than the unsprayed fruit.

If the self-boiled lime-sulphur is properly prepared there is no danger of injury to the fruit or foliage; even if carelessly prepared, the danger is not great. There is some danger of staining the fruit if the mixture is applied within three weeks of the time of ripening.. To get best results give a light uniform coating in a fine spray.

Time of application: 1, about the time the calices (or shucks) are shedding, spray with arsenate of lead at the rate of 2 lbs., to 50 gals of water. As this is too early for both scab and brown rot, the lime-sulphur mixture is not necessary. 2, Two weeks later or about one month after petals drop, spray with 8-8-50 self-boiled lime-sulphur, and 2 lbs. of arsenate of lead. 3, About one month before the fruit ripens, spray with 8-8-50 self-boiled lime-sulphur, omitting the poison.

[Note.—It is presumed that the "50" refers to gallons in wine measure, which is equivalent to 40 gallons, Imperial, the measure used in Canada.—Editor.]

In orchards where the curculio is not omitted. The best treatment in that case would be to spray the trees with the lime-sulphur a month after petals fall, a month before fruit will ripen, and at a period about half way between those dates. Early maturing varieties will require but two sprayings, except in wet seasons when three treatments will be required.

For scab or black spot alone, one application of lime-sulphur about one month after the petals drop, will prevent most of the infections. In most cases, however, a second application would probably pay.

In a discussion that followed Mr. Scott's paper, Prof. J. P. Stewart, State College, Pa., told of serious cases of burning that were due to this combination. He had used the arsenate of lead with the lime-sulphur. He found that the adhesive quality of the arsenate is lost when combined with the ordinary lime-sulphur. The arsenate of lead, according to Professor Stewart, costs six times more when applied this way than when applied in other mixtures. Dr. Fletcher stated that the diluted factory-boiled lime-sulphur, would soon be the standard summer spray. He said that arsenate of lead used with this gave results—*worm free fruit*—and that is all that is wanted. The first application is made immediately after the blossoms drop, the second two weeks later, and the third a month later. A lively discussion took place on the use of arsenate of lead in sulphur sprays and opinion was divided.

MISCELLANEOUS.

In addition to the foregoing there were many other addresses and discussions of equal importance. Some of those that were of particular interest to Canadian fruit growers and which will be reported in later issues, are: "Little peach," M. B. Waite, of Washington, D.C.; "Controlling Codling Moth," L. Caesar, O. A. C., Guelph; "Influence of Blighted Pear Trees in Apple Orchards," J. A. Burton, Orleans, Ind.; "A Study of Varieties," Prof. W. N. Hutt, Raleigh, N. C., and "Status of Grape Growing in Canada," Murray Pettit, Winona, Ont.; "Adaptation of Varieties of Soil Conditions," by various speakers; and some others.

EXCURSIONS.

Three excursions were taken by the members of the society and others. The first one was through the Grimsby-Winona district, where were visited the fine farms of Hamilton Fleming, A. G. Pettit, Murray Pettit, J. W. Smith & Son, and the large establishment of E. D. Smith's. The second was to the Queenston-St. David's district, where the excellent farms of Wm. Armstrong and C. E. Fisher & Sons, were visited, and some of the party visited the farms of W. C. McCalla, A. Onslow and Robt. Thompson. The third and concluding feature of the program, took the members for an all-day trip to the Ontario Agricultural College, Guelph.

OFFICERS ELECTED.

The election of officers resulted in the return to office of those gentlemen, who have held these positions during the past two years as follows: Pres., L. A. Goodman, Kansas City, Mo.; 1st vice-pres., T. V. Munson, Denison, Tex.; sec., John Craig, Ithaca, N.Y.; treas., L. A. Taft, Agricultural College, Mich.; chairman, executive committee, C. L. Watrous, Des Moines, Iowa; chairman general fruit committee, S. A. Beach, Ames, Iowa.

Society for Hort'l Science

At the sixth annual meeting of the Society for Horticultural Science, which was held at St. Catharines, Ont., on September 13, topics of much importance to fruit growers and experiment station workers were discussed. The main purpose of this organization is the promotion of research work in horticulture. A fair representation from the experimental stations and colleges of the United States and Canada was present. President W. A. Taylor, of Washington, D.C., was in the chair.

Some notes on pruning were given by Prof. W. R. Lazenby, of Columbus, Ohio. He stated that pruning is the one fundamental practice in horticulture about which we have little definite or no exact knowledge, and still less well grounded principles. There are few definite and well defined systems of pruning. It is a sort of hit or miss, go-as-you-please policy from start to finish.

In giving the reasons for this lack of widely accepted policies in pruning, the professor referred to the diverse objects said to be accomplished by the same operations; such as, to stimulate as well as to check vigor of growth, to hasten as well as to retard the age of bearing, to increase as well as to decrease fruitfulness, to promote as well as to restrain the production of wood, and some others. These make the methods employed in the practice variable and the difficulty correspondingly great.

Another reason lies in the fact that we fail to recognize the colony characters of trees and higher plants. We are apt to treat the tree as an individual with a complete anatomy like the higher forms of animal life. By removing a certain portion of a tree at one time, we increase its vitality and by removing a like portion at another time we decrease its vitality, and in both cases, we may enlarge its usefulness. The speaker suggested that our horticultural experts get together and plan some far-reaching co-operative experiments in pruning. Many questions should be settled.

A paper on "Concentrated Lime-sulphur; Its Properties, Preparations and Use," was presented by Professor John P. Stewart, of State College, Pa. The subject was dealt with in an able manner and much that was new was told. Extracts from this paper will appear in later issues of THE CANADIAN HORTICULTURIST.

Mr. W. T. Macoun of the Central Experimental Farm, Ottawa, read a valuable paper entitled, "Over-coming Winter Injury." Some of the topics dealt with, such as root killing, sun scald and others, already have been discussed, by Mr. Macoun in THE CANADIAN HORTICULTURIST. Extracts from this paper are published elsewhere in this issue.

"Observations on the Horticulture of West Europe" was the subject of an interesting talk by Prof. U. P. Hedrick, Geneva, N. Y. He said that America can learn very little from Europe in regard to commercial horticulture, but that many ideas regarding landscape gardening could be gained. Dr. E. W. Allen, of Washington, D.C., discussed "The Adams Fund in its Relation to Investigation in Horticulture."

In an address on "The Ideal Variety," Prof. W. N. Hutt, of Raleigh, N.C., said that the demand in the markets for red apples had driven out much good fruit. The ideals of the producer and of the consumer should be merged as they are now widely divergent. While the strictly ideal variety may never be secured, we should strive to attain that end. The transportation problem should be given more attention so that fruit of the best quality may be carried to distant markets in good condition. Present facilities for transportation are largely the cause of the Ben Davis, Kieffer and Elberta, being standard varieties in their respective classes.

An able address was delivered by Dr. L. H. Bailey, of Cornell University, on "The Field of Research in Horticulture." He pointed out that every man could not do satisfactory research work, because every man has not a research mind. Mature men are needed in horticulture both in scientific and in practical work. Boys should not go to college too young; should they do so, they should spend a few years at work after graduation so that they might get right views of life before entering upon scientific research or other work. An all-round horticultural education is required, but the aim should be specialization in some one of its branches.

Rennie's fall catalogue has been received In it are listed the best varieties of bulbs, perennials and other plants. Send for a copy.

Niagara District Horticultural Exhibition

THE best tender fruit show that ever has been held in Canada was the Niagara District Horticultural Exhibition, held in St. Catharines, Sept. 15-17. The quality all around was superior and the extent of the display was greater even than had been expected. The delegates to the convention of the American Pomological Society were much impressed with the exhibition. Some of them told a representative of THE CANADIAN HORTICULTURIST that the exhibition in general could not be excelled anywhere. Col. C. B. Brackett, United States Pomologist, Bureau of Plant Industry, Washington, D.C., said that the whole show was an excellent one. He stated that the peach display was better than anything that he has seen this year in the United States and equal to any that he ever saw. Mr. Leonard Barron, managing editor of *The Garden Magazine*, New York City, commented upon the uniformity in quality and said: "It is magnificent."

The commercial package exhibits were fine, except perhaps in the case of apples. The peach pack was almost faultless. Pears were fine, especially Bartletts. The plums were better than ever. Grapes were fully up to the standard. The plate exhibits in fruit were equally creditable.

Space will not allow mention of all of the prize winners. The Rittenhouse competition for the best display of fresh fruits grown in the province was won by S. D. Furminger; 2nd, W. H. Bunting; 3rd, The Burlington Horticultural Society. For best display of peaches, W. Armstrong, secured 1st prize and C. G. Gregory, 2nd. The awards for best display of grapes were; 1st F. G. Stewart; 2nd, A. D. Brodrick; 3rd, A. Haynes. In the wrapping and packing competitions, the prizes were fairly well distributed between the Misses Boles, Vanderlip and Thompsen.

Much interest was taken in the competition for Wilder Medals, given by the American Pomological Society. Space does not permit us to mention all of the awards. Silver medals were awarded to the following Canadian exhibits: Central Experimental Farm, Ottawa, for a collection of hardy apples, including 20 named and tested varieties, 40 seedlings of Wealthy, originated on the farm, 14 seedlings of McMahon crossed with Scott's Winter; Experimental Farm, Indian Head, Sask., for a number of hybrids of *Pyrus baccata* and *P. prunifolia* with several varieties of hardy apples. The seedlings of Wealthy and the crosses of McMahon and Scott's winter, together with the crab hybrids, constituted one of the most interesting and significant exhibits before the society in recent years, illustrating as they did the systematic work under way to extend the northern frontier of fruit culture. Silver medals were awarded also to A. P. Stevenson, Nelson, Man., for a collection of 14 hardy varieties of apples, which illustrated the possibility of apple growing in the far north; and to Robt. Thompson St. Catharines, for an attractive exhibit of bottled fruits.

Bronze Wilder medals were awarded to Albert Pay, St. Catharines, for an artistic exhibit of fruits, illustrating the product of a singe farm and comprising peaches, plums, pears, grapes, water melons and muskmelons ;to the Burlington District for a collection of fruit shown by the Burlington Horticultural Association; to the St. Catharines Cold Storage and Forwarding Co., for a very attractive and extensive display of package fruit, which constituted probably the greatest feature of the entire exhibition; to R. B. Whyte, Ottawa, for a collection of 17 varieties of English gooseberries, that illustrated the possibilities of growing these varieties without spraying; to Wm. Armstrong, Queenston, for a very attractive and original display of peaches. Among those who secured honorable mention was A. Burrows, Ste. Anne de Bellvue, Que., for exceptionally fine specimens of Alexander, Oldenburg and Wealthy.

In the vegetable department there were some fine specimens in the various classes. The tomatoes were exceptionally fine. The largest and best exhibits in vegetables were made by L. Gray, S. D. Furminger, Wm. Coppin and W. C. McCalla. The stuff was well grown and a credit to the district.

While the floral features of the exhibition were most creditable, it cannot be said that they constituted as striking a display as did the fruit. While there were many exceptionally fine exhibits of cut flowers and plants, there were also many poor ones. The professional competitions, including general displays, design work, cut bloom and specimen plants were very good, the prizes being divided among R. L. Dunn, N. Whiting and L. C. Bradt. Mr. C. Riordon, through his gardener, John Elliott, won first prize for best display of plants from a private greenhouse. Queen Victeria Park at Niagara Falls put up an extensive and attractive display of decorative plants, which was well staged and attracted much attentiin. The amateur classes in cut bloom brought out a good lot of exhibits. Special interest was taken in the school children's competition. The decorated reception tables were not up to the mark, although there were a large number of entries, One of two of them were quite novel and prettily arranged.

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At The Canadian National

The horticultural exhibits at the Canadian National Exhibition held in Toronto last month, were most creditable and instructive. An excellent display of fruit was made, but the number of entries was not as large as last year. In the commercial package classes, competition was keen. The quality of the fruit was very uniform but much can still be learned about packing. During recent years, there has been a steady improvement noticed in packing methods, but the exhibits this year seemed to show that progress has stopped. Generally speaking, the packs were not as good this year as last. It is surprising that the growers do not give this matter more care and attention. While the packs in some of the boxes exhibited were good, many of them showed carelessness and ignorance. In a few of the boxes, the apples appeared to have been dumped in in bulk without any attempt having been made at systematic arrangement. The judges found it necessary in some cases to rule out some of the best fruits on exhibition simply because it was not properly packed. Besides the good fruit that was poorly packed, there was some poor fruit well packed. The apples, generally, were fair, but it was a little early for winter varieties to make a good showing; they were rather small in size and lacking in color. The commercial packages of peaches, plums and pears were excellent.

In the plate display, a fine showing of fruit was made. There was a large number of entries in plums and they were good. The pears were extra good. The grape display was not as large as last year; although the date of holding the show was early for them, there were some good samples shown. The peaches were exceptionally good. First prize for the best display was won by the St. Catharines Horticultural Society, which put up an extensive exhibit including apples, pears, peaches, plums and grapes. For best collection of 40 varieties of apples, first prize went to Harry Dempsey, Rednersville, for the 12th successive year.

A Well Packed Box of Well Grown Wealthys
Part of British Columbia fruit display at Canadian National Exhibition.

The Ontario Department of Agriculture made a display of fruits that was attractive and was the subject of much favorable comment. Various colored plums were so arranged that the word Ontario stood out prominently and gave a striking effect. The best specimens and typical ones of the leading varieties of fruits in season at the time of the exhibition were displayed. It was chiefly a peach and plum exhibit. A placard called the attention of the passers-by to the fact that Ontario produces 75 per cent of all fruits grown in Canada, 60 per cent. of the plums, 99 per cent. of the peaches and grapes, 70 per cent .of the apples, and 80 per cent. of the small fruits and pears.

The provincial government of British Columbia had a large exhibit of the products of that province. The fruits represented various districts, including the Okanagan, Kootenay, Thompson and Fraser Valleys and Vancouver Island. Plums, prunes, peaches, pears, apples, crab apples, cherries, and tomatoes were shown. Some excellent boxes of Yellow Transparent and Wealthy apples grown by Jas. Johnstone, Nelson, were much admired; they contained good stuff that stood up well and well packed. Stirling and Pitcairn, of Kelowna, had various packages of fruit in this display that came through in the best of condition. The Progress Fruit Packing Co., of Victoria, also had a fine showing, especially in prunes. The B. C. exhibit was in charge of Mr. W. E. Scott, Exhibition's Commissioner, Victoria, who was assisted by Mr. W. J. Brandrith, Ladner, secretary of the B. C. Fruit Growers' Association. The whole display was a fine one.

Entries in the vegetable classes were not as extensive as last year. The quality mostly was good. There were shown some specimens of the different kinds of vegetables that were grown as well as can be

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grown anywhere. The awards for the best collection of vegetables were placed as follows.: 1st, W. Harris, Humber Bay; 2nd, Brown Bros., Humber Bay; 3rd, Ed. Brown, Wychwood Park; 4th, Geo. Baldwin, Toronto. Much improvement can be made in the manner of displaying these collections. There was nothing very attractive about them, other than the fact that they contained well grown specimens of the varieties shown. A large exhibit was made by the Ontario Vegetable Growers' Association. It was composed of all kinds of vegetables and was most creditable.

In the floral department, the most striking features were the decorative floral displays. The landscape effects of all of these were excellent and also the quality and cleanliness of the plants used. Four of the groups showed quiet streams running through them; one produced a natural water fall, and one had no water effect. The awards were made in the following order: 1, T. Manton; 2, E. F. Collins; 3, Sir H. M. Pellatt; 4, J. Brant; 5, D. Robertson; 6, W. G. Potter. Space will not allow further mention of the floral exhibits except in the case of Campbell, of Simcoe, who showed a fine display of gladioli.

I enjoy reading THE CANADIAN HORTICULTURIST, and find in it many useful suggestions.—Miss F. A. Wright, Ottawa.

Horticulture at Ottawa

W. J. Kerr

This year the exhibit in Horticultural Hall at Central Canada Exhibition, Ottawa, far excelled all previous records. A re-arrangement of the exhibits, was a decided improvement, and the display was so great that a tent had to be called into requisition to hold the roots. A very large display of apples was shown, Duchess, Wealthy, McIntosh and Fameuse predominating, but some exceedingly fine plates of other varieties were also shown, which proves that the Ottawa Valley can produce fine apples, especially of the kinds named, and a few others such as Alexanders, Wolf Rivers, Baxters, St. Lawrences, Langford Beautys, etc.

In the vegetable section, cabbages and cauliflowers were very good, the former being shown in large numbers. Tomatoes did not show up as well as they might, owing to the cold backward weather we have had. Potatoes were especially fine.

The largest exhibitor in fruits and vegetables was Mr. T. W. Trick, president of the local Vegetable Growers' Association, who won a large share of the leading prizes.

The Experimental Farm exhibit was a very creditable showing indeed. The decorative display was admirably accomplished; the arrangement of grains and grasses, with the many admonitions to the visiting farmers displayed on cards placed here and there through the display, being most interesting. The fruit shown in this exhibit was very attractive. Some 200 standard varieties of apples were shown as well as 50 promising varieties of seedlings of leading hardy standard varieties, largely of Wealthy. There were also 35 varieties of tomatoes, 25 of corn, 40 of plums, 20 of cucumbers, also vegetable marrows, peppers, egg plants, etc. A feature of the plum exhibit was the fact that they only showed one Domestic or European variety, and no Japanese. A few plates of Nigras, or native Canadians were shown, but mostly Americanas, which is the only type of plum that is reliable in the Ottawa Valley.

A tasty and interesting display was put up by the Ottawa Normal School, consisting of vegetables and flowers grown by the pupils in the school garden, and were a credit to the manager of this important part of the childrens' training, as well as to the pupils themselves.

British Columbia put up a wonderful display of plums, pears, apples, etc., which proves conclusively that their's is a great fruit country. If they could only put Ontario flavor into their fruit, the writer thinks he might go out there and go into fruit growing. Some Wealthy and Gravenstein apples put up by Stirling and Pitcairn, of Kelowna, and plums and pears put up by Progress Packing Co., of Victoria, were really beautiful to look at, and kept remarkably well.

The floral display was good, but considerable complaint was made by private exhibitors, that Government House and Public Works Department should be permitted to compete with the private exhibitors. Jas Cox, provincial representative of the Vegetable Growers' Association, cleaned up all the best premiums of gladioli.

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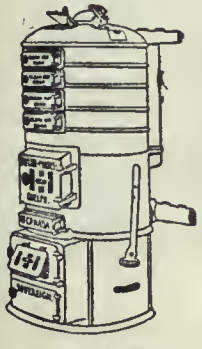

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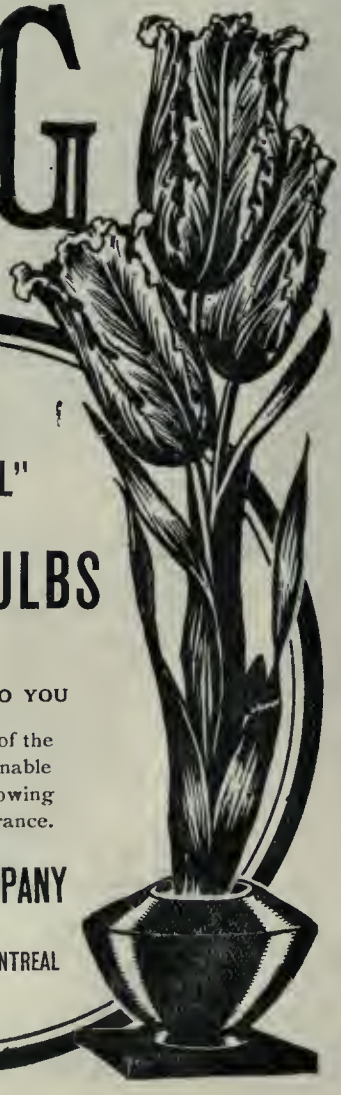

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NOTES FROM THE PROVINCES

Vancouver Island

F. Palmer

In all parts of the island the apple crop has been exceptionally light. The earlier varieties, such as Duchess and Wealthy, gave a fair crop, but the later varieties give promise of not more than a third of a crop. Wrapping apples is coming into more general use here, with the result that the fruit arrives in the north-west in much better condition.

As a slight compensation for the light apple crop this year, the pear crop is an exceptionally fine one. Both early and lato varieties are heavily loaded and a record crop is almost assured.

Plums and prunes have been very good this year, as a rule, though a few varieties have been somewhat lighter than usual. Plum rot has been quite prevalent in districts, where stringent measures have not been taken to keep this disease down. Little of it is to he found in well kept, well sprayed orchards.

Kootenay Valley, B. C.

Edgar W. Dynes

Perhaps the most important event of September, as far as the horticultural interests of the Kootenay are concerned, was the visit of Professor Craig, of Cornell University. Professor Craig was a judge at the National Apple Show in Spokane last fall and he was so impressed with the quality of the fruit that he saw there from British Columbia that he determined to make a visit to the fruit sections of Canada's Pacific province as soon as possible.

The British Columbia government learning of his intention, prevailed upon him to consent to deliver a series of lectures on fruit growing throughout the province. He agreed to their request and lectured at about a dozen of the most important centres. His talks were informal and he sought at each place to deal with the problems which seemed to particularly affect that locality.

He expressed surprise that British Columbia orchards were so very free from pests and urged the growers to see to it that they continued to do so. By way of comparison he mentioned that the growers of the New England States spend annually 20 per cent, of their gross receipts in fighting three pests—apple spot, pear blight and San Jose scale. He found none of these pests in Kootenay orchards.

He dealt with many other aspects of the fruit situation, such as winter killing and cover crops, and wound up with the observation that he considered there was no probability of an over-production in the apple business.

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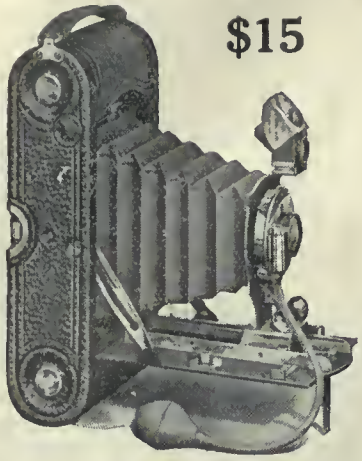

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The apple crop in Kootenay seems to be lighter than last year on the whole, but the prospect of good prices will more than make up the difference. Very few orchards report a falling off in the crop as the result of the severe winter as has been the case in some districts not so favored.

Saskatchewan

Angus Mackay

The season for small fruit, both native and cultivated, is over, and it has been without exception the most favorable year for all sorts ever experienced in this province. Wild strawberries, raspberries, gooseberries and Saskatoon berries were abundant everywhere. Black currants were also abundant, as well as the red variety, though as a rule the latter grow only in favored localities.

The cultivated sorts, especially currants and raspberries, were loaded everywhere. Strawberries were better than usual. Gooseberries generally bear only on the lower branches which are protected by snow, and this year was no exception.

The crab apple orchard is now ripe. I am sending to you part of a branch showing how prolific our country is when everything is favorable. I send also a branch of the *Pyrus baccata* crab-apple, from which the larger sort is a cross.

Trees and shrubs have done extra well throughout the province wherever grown. In a few localities the heavy rains and hot weather caused rust on many of the poplars and cottonwoods.

[NOTE.—The specimens of named varieties that we received were a fine lot and showed the possibilities of this fruit in Saskatchewan. The experimental farm at Indian Head, of which Mr. Mackay is the superintendent, is doing much valuable work for horticulture in that province. We congratulate Mr. Mackay on winning a Wilder silver medal at the recent Niagara District Horticultural Exhibition.—Editor.]

Manitoba

Jas. Murray

The members of the Branden Horticultural Society excelled themselves this year at their show. They made a most creditable showing considering the dry weather experienced here for a month previous to the show.

Killarney held its second show of flowers and vegetables this year, and also conducted several interesting competitions in the care of grounds and yards. Killarney has a number of enthusiastic horticulturists, and their influence behind the Horticultural Society is resulting in a great improvement of the appearance of the homes in the town. We need more such societies.

Winnipeg

Geo. Batho

The Provincial Horticultural Exhibition held in Winnipeg in late August, was a remarkable success. The exhibit of fruits created a greater surprise than anything else in the show. In this section A. P. Stevenson, Dunston, and the Buchanan Nursery Co., were the largest exhibitors, although the latter did not enter anything for competition. Mr. Stevenson had the largest number of apples, having a collection of 29 named varieties of standard apples, besides a larger number of named crabs, seedling apples and seedling crabs. A. McLeod and Edward Oak, of Morden, as well as Alex. Fowler, of Baldur, and J. B. King, of Fairfax, also put up smaller exhibits of apples. The whole apple dis-

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play was too green for exhibition, although some of the fruits showed very attractive coloring. Two weeks later would be much better for the large fruit section of the exhibition. The Buchanan Nursery Co. had quite a large table covered with seedling crabs and another table contained about 75 plates of seedling plums, mostly of the native type, but some of them large and very attractive in coloring. Outside of this one exhibit, the plum display was not very large.

The vegetable exhibit was a real wonder. Besides very large collections put up by the Canadian Pacific gardens at Louise Bridge and the Government House at Winnipeg, there were six collections shown by professionals. Besides this, there was a very full entry for competition in all the classes for individual varieties.

The amateur exhibit of vegetables was not inferior in any way to that shown by the professionals. In some sections it was superior, notably in cabbages and potatoes.

The flower sections of the show were also very strong. Of the city greenhouse men, A. H. Stopler and R. B. Ormiston were the only ones to put in displays, but excellent and large exhibits of decorative plants were put up by the Winnipeg Parks Board, the Agricultural College and Government House. Besides this the Elmwood Cemetery Co. made a splendid display that showed what they are doing in the way of growing conifers, ornamental shrubbery and flowers. The Buchanan Nursery Co., Brookside Cemetery and the Winnipeg Parks Board also exhibited quite a large number of cut flowers.

Besides this, there was a very large display of cut flowers both professional and amatour entered in the contests for different varieties. Among all the different kinds that were shown it is hard to particularize but perhaps sweet peas, gladioli and asters may be mentioned as being particularly fine. The potted plants did not make a large exhibit and were not of a very superior quality.

Most of the exhibitors at the exhibition belonged to the Winnipeg district, but besides local exhibits quite a number were brought from outside points. This was especially the case in the fruit sections, but S. Larcombe, of Birtle, who came almost two hundred miles with a fine collection of vegetables and cut flowers, may be given special mention, as well as note made of the vegetable exhibit which was received from Dauphin too late to enter for competition.

Montreal

E. H. Wartman, Dominion Fruit Inspector

Fruit going forward so far under my inspection has been of very fair quality, principally apples and pears. Of course, the kinds of apples going forward—Duchess, Alexanders, Wealthy, Colverts, Jennetting—are not so subject to fungi as many varieties to follow, I am glad to report one lot of R. I. Greenings that went forward of a very clean type and well matured for season.

Packers should not put in apples under medium size in No. 1 quality, even if they are bright in color. Color is a redeeming feature but, if less than medium, let them go to better the No. 2 grade. Looking into the basket packs of peaches, pears and apples I find the packers who take pains and place their fruit in tiers show a compact, even surface with medium fruit by itself and large in another basket. This way attracts attention.

Export apples are largely in eight-hoop barrels, which is the barrel every time for

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long distances. Colborne district is shipping a first class eight-hoop barrel. Some apples, arriving at temperature 70 and over in box cars, would be better in refrigerator iced cars that are arriving much cooler.

Quebec

An organization to be known as "The Quebec Vegetable Growers' Association" was formed at Macdonald College on Sept. 8. About 30 growers were present. The executive will hold a meeting soon to complete details. The following officers were elected: Hon. pres., J. L. Decarie, Minister of Agriculture for Quebec; Hon. vice-presidents, Dr. Jas. W. Robertson and Robert Brodie; pres., Paul Wattiez; 1st vice-pres. Jack McEvoy; 2nd vice-pres., J. B. Beyries; sec.-treas., Anatole Decarie, 397 Decarie Ave., Notre Dame de Grace; exec. com., Prof W. S. Blair, F. Lariviere, Jas. Clark, Jos. Deguire, John Nesbitt, D. McMeekin.

The members of the association are: Prof. W. S. Blair and J. F. Monroe, Macdonald College; John Nesbitt, Jack McEvoy and M. McEvoy, Petite Cote; F. Lariviere, H. Boyer, Amedie Lecavalier, St. Laurent; Robert Brodie and Anatolo Decarie, Notre Dame de Grace; Paul Wattiez and James Clark, Outremont; D. McMeekin, Valleyfield; Jos. Deguire, Alp. Goyer, Paul Goyer, Antoine Goyer, Edward Goyer and Oct. de Repentigny, Cote des Neiges; R. Jack & Sons, Chateauguay; A. Ferguson, Montreal; Placide de Repentigny, Montreal West; Jos. des Lauriers, Cote St. Francois; J. B. Beyries, Cote St. Paul; Remi Goyer, Cote Vertu, St. Laurent; Wm. Williams, Ste Anne de Bellevue.

The Washboard Ruins Clothes

Take a new shirt. Soil it well!

Then soap it, and rub the stains out of it on a Washboard.

Do this six times. Then look at the hems, collar and cuff edges and the button holes closely.

You'll find them all badly frayed, ripped, thinned, worn out more than from three months' hard steady use.

Half the life of the garment gone—eaten up by the washboard.

Shirt cost a dollar, say—washboard takes 50 cents of wear out of it—you get what's left.

Why don't you cut out the Washboard? Use a "1900 Gravity" instead? It drives the water through the clothes like a force pump. It takes out all the stains, in half the time, without wearing a single thread, or cracking a button.

No rubbing, scrubbing, wearing, nor tearing the clothes against a hard metal Washboard. That costs twice as much for hard work, and wears out twice as many clothes in a year.

Try the "1900 Gravity" for four washings! Won't cost you a cent to try it either. You write to me for a "1900 Gravity" and I'll send it to any reliable person without a cent of deposit, or a cent of risk on their part.

I'll pay the freight, too, so that you may test my offer entirely at my expense. Use it a month free of charge.

If you like it then you may keep it.

If you don't like it, send it back to me, at my expense.

If you keep it you pay for it out of the work and wear it saves you—at say, 50 cents a week. Remember, it washes clothes in half the time they can be washed by hand, and it does this by simply driving soapy water swiftly through their threads.

It works like a spinning top and it runs as easy as a sewing machine.

Even a child ten years old can wash with it as easily as a strong woman. You may prove this for yourself and at my expense.

How could I make a cent out of that deal if the "1900 Gravity" wouldn't actually wash clothes in half the time with half the wear, and do all that I say it will?

I'll take it back then, if you think you can get along without it. And I'll pay the freight both ways out of my own pocket.

I'll send the "1900 Gravity" free for a month anywhere so you can prove it without risking a penny.

Write to me to-day for particulars. If you say so, I'll send on the machine for a month, so that you can be using it in a week or ten days.

More than 200,000 people are now using our "1900 Gravity" Washers. Write to-day to me, personally, C. H. X. BACH, Manager, The "1900" Washer Co., 357 Yonge Street, Toronto, Ont.

The above offer is not good in Toronto or Montreal, and suburbs—special arrangements are made for these districts.

1912

New Brunswick

J. C. Gilman

The apple crop is decidedly light with many undersized and wormy. The McIntosh is promising better than many other varieties and good samples will bring good prices. First early apples sold from $3 to $5 a barrel. Duchess are now selling in the local market for $2 a barrel, package returned.

Fredericton Exhibition was good and will do much to encourage the setting of more trees and the giving of better care to those already set. The outlook for the thoroughgoing fruit grower in New Brunswick is good.—J. G. G.

Annapolis Valley East, N. S.

Eunice Watts

In some apple orchards, especially when cultivation and fertilizing have been neglected, many blossoms have set together, giving rise to bunches of mal-formed and useless fruit. This is often characteristic of Ribstons, but this year it is particularly noticeable with the Blenheims and other varieties. Plums and pears carry abundant crops. All through this locality, there are good cover crops of vetches in orchards.

In the locality of Waterville, tomatoes have done exceedingly well. The late frosts have not damaged them, and there are quantities yet to harvest, but there is much difficulty in obtaining plum baskets, which are used here for sending tomatoes to market. In Berwick, the tomato crop of some prominent growers is a complete failure, owing to disease. The price has gradually dropped from $1.25 a basket to 20c. but even then they are more profitable and prolific than potatoes.

Annapolis Valley West N. S.

R. J. Messenger

Even the most sanguine, are now speaking more moderately of the apple crop prospects. The crop of the province seems to be of average quantity and fruit is clean, but there will be a greater proportion of No. 2's and 3's than in previous years, on account of the dry weather which still continues.

Fruit, in spite of the warm summer days and dry weather, does not seem to be ripening any earlier than usual, Gravensteins were picked from Sept. 12th to 20th, while Kings and Ribstons do not show ripeness in any degree, at this writing (Sept. 21.) The writer has seen many trees of Baldwins that at this date have at least 90 per cent. under 2 inches in diameter. While, to show the benefits of thinning this summer, I noted especially the effect of thinning on a Baldwin in one corner of my orchard. This tree in its bearing years has always been very full of very small apples, averaging about 80 per cent. No. 2's and smaller. This year the results of thinning show up a full crop, with probably 40 per cent. No. 2's and smaller.

Our cover illustration this month shows the general collection of fruits that was exhibited at the Canadian National Exhibition, Toronto, by Mr. W. H. Bunting on behalf of the St. Catharines Horticultural Society. This display won first prize, and this was the fourth consecutive year that the St. Catharines society secured first place for a similar display at this exhibition. In its exhibit this year, there were over 100 varieties of fruit, comprising apples, pears, plums, peaches, grapes and other kinds.

Prince Edward Island

J. A. Moore

The early apples are about matured and hitherto the problem has been—how to dispose of them. Usually they were gathered in bags and boxes and taken to the city to be sold by the peck or bushel, and, being unsightly in appearance, they brought only a meagre price. Often they were left to rot on the ground or were fed to cattle and hogs. But this year a Co-operative Packing Company has been established and the members were asked to send in the probable amount of apples they will have ready to pack about Sept. 20, as Chief McNeill, of the Fruit Division, Ottawa, arranged to send an expert packer to Charlottetown to superintend the packing of all fruit offering.

It is the intention of the co-operative company to make an effort to supply the local market with apples. Large quantities of apples are imported here from the Annapolis Valley and Ontario, and there seems to be little reason why home grown fruit, properly selected and packed, should not be bought in preference. Personally, we have had no trouble whatever in disposing of our own crop at good prices to Charlottetown merchants. We have always used the regulation box package—10 x 11 x 20 inches inside measurement—and have hand-packed them in layers, realizing from $1.00 to $1.50 a box according to variety and grade. Just now we are marketing Crimson Beauty apples at $1.25 and $1.50 a box to city merchants. Of course, the demand is limited, but it shows what can be done with a good quality of fruit, properly packed.

At a recent meeting of the Strathcona Farmers' Institute at Hazelbrook, Professor J. W. Jones, a native of the district, and a graduate of the O. A. C., who has lately been appointed to the position of Instructor in Horticulture in Hampton Institute, Virginia, addressed the meeting on the subject, "Some things I have seen in the Growing and Marketing of Fruit in Districts embracing California, British Columbia, Ontario and Nova Scotia." Professor Jones' address was replete with information showing that if we are to compete successfully in the world's markets, we must co-operate in growing large quantities of a few good varieties, have better facilities in the way of transportation, in which we are badly handicapped, and adopt up-to-date methods.

The crying need of P. E. Island to-day is "The Tunnel" under the Northumberland Straits to connect us with the great railway systems of the mainland, so that her fruits could be placed in refrigerator cars and have a quick and continuous passage to their destination. As it is now, fruit must be transhipped several times with no refrigeration whatever and at exorbitant freight rates. The tunnel would obviate all this, and as Prince Edward Island is all adapted to fruit growing we might have a million acre orchard.

Apple Storage.— Several cogent reasons are given by The New Brunswick Cold Storage Co., St. John, N. B., in their change of ad, in this issue, as to why fruit men may patronize their house to advantage. At the recent annual meeting of the stockholders of the company, it was decided to continue the storage rates on last year's basis although they were only 60 per cent. of the prevailing charge of seaboard houses in the United States. Mr. George McAvity, of St. John, was elected president; Mr. L. S. Macoun, of Ottawa, was re-elected secy-treasurer; Mr. H. R. Ross, of St. John, was re-appointed manager of the company's business. Messrs. John W. Vanwart, St. John, and F. Orr Lewis, Montreal, were added to the board of directors, Their house was built with the special object of assisting the apple trade, and their claim that with fruit shipped direct from the orchards, they can save enough on shrinkage to pay the storage charges, is well worthy of consideration.

The annual meeting of the Pomological and Fruit Growing Society of the Province of Quebec will be held at Macdonald College on Dec. 8 and 9. A fruit exhibit will be held.

The secretaries of local branches of the Ontario Vegetable Growers' Association are requested to send copies of all papers read at meetings of their branches.

Tin Instead of Glass for Canning

Editor, THE CANADIAN HORTICULTURIST: At an Ontario fruit experiment station, the superintendent, a man alive to possibilities, recently advised that in domestic canning and preserving of fruits and vegetables, in the household sense, the housewife could effect an economy by the use of tin in place of glass containers. The necessary equipment being cheap and not difficult to handle, even unskilled hands could do good work, safekeeping economy of time and materials, and less fragile stock being especially apparent. Many fruit and vegetable gardens produce a superabundance which could be turned to account if the work of canning and its possibilities in the hands of a tyro were better understood.

I have tried to get a price quoted me on cans of the sizes used generally for tomatoes and for peas, by commercial canners, but there seems to be no desire to sell in less than car lots. One firm offered cheerfully to supply them by the million instead of by the hundred. Optimist, eh? I received a reply from another with prices in dozens (and evidently penalty prices.) [NOTE.—The name of this firm with their prices will be given on application to THE CANADIAN HORTICULTURIST.—Editor.] Could you or any readers of THE CANADIAN HORTICULTURIST furnish the names and addresses of a few can makers who would furnish cans at a fair price, in hundred or even dozen, lots.—"One Interested," Toronto.

"How to Build Rural Telephone Lines" is the title of a booklet issued by the Northern Electric & Manufacturing Co., Montreal. The book is comprehensive in character and very informative. It treats of a subject vitally important to the farmer, and makes clear that Rural Telephones are "an inexpensive necessity." Every fine point in the construction of a rural telephone line is explained carefully and clearly, and the illustrations, accompanying the text, bring the points home with double emphasis. This booklet laying bare the telephone question as it confronts farmers, is sent free on request. It is worth reading.

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Preserving Fruit for Winter Use

IF practicable, pare fruit with a silver knife, so as not to stain or darken the product. The quickest and easiest way to peel peaches is to drop them into boiling water for a few minutes. Have a deep kettle a little more than half full of boiling water; fill a wire basket with peaches; put a long handled spoon under the handle of the basket and lower into the boiling water. At the end of three minutes lift the basket out by slipping the spoon under the handle. Plunge the basket for a moment into a pan of cold water. Let the peaches drain a minute, then peel. Plums and tomatoes may be peeled in the same manner.

If peaches are to be canned in syrup, put them at once into the sterilized jars. They may be canned whole or in halves. If in halves, remove nearly all the stones or pits. For the sake of the flavor, a few stones should be put in each jar. When preparing cherries, plums or crab apples for canning or preserving, the stem or a part of it may be left on the fruit.

PEACHES

Eight quarts of peaches, one quart of sugar, three quarts of water—Put the sugar and water together and stir over the fire until the sugar is dissolved. When the syrup boils skim it. Draw the kettle back where the syrup will keep hot, but not boil. Pare the peaches, cut in halves, and remove the stones, unless you prefer to can the fruit whole.

Put a layer of the prepared fruit into the preserving kettle and cover with some of the hot syrup. When the fruit begins to boil, skim carefully. Boil gently for ten minutes, then put in the jars and seal. If the fruit is not ripe it may require a little longer time to cook. It should be so tender that it may be pierced easily with a silver fork. It is best to put only one layer of fruit in the preserving kettle. While this is cooking the fruit for the next batch may be pared.

QUINCES

Four quarts of pared, cored and quartered quinces, one and one-half quarts of sugar, two quarts of water.—Rub the fruit hard with a coarse crash towel, then wash and drain. Pare, quarter and core; drop the pieces into cold water. Put the fruit in the preserving kettle with cold water to cover it generously. Heat slowly and simmer gently until tender. The pieces will not all require the same time to cook. Take each piece up as soon as it is so tender that a silver fork will pierce it readily. Drain on a platter. Strain the water in which the fruit was cooked through cheese cloth. Put two quarts of the strained liquid and the sugar into the preserving kettle, stir over the fire until the sugar is dissolved. When it boils skim well and put in the cooked fruit. Boil gently for about 20 minutes.

SWEET PICKLED PEARS

The small, rather hard pear is best for this purpose, and there is comfort for city people in the fact that they need not come as directly from the tree as when they are to be used for canning purposes. Make a pickle of sugar, vinegar and spices, as for any sweet pickled fruit, and when it boils, throw in the pears, whole, and let them cook until they can easily be pierced with a fork. Then turn them in to a large stone jar. Next morning, drain off the syrup, boil it, and again pour it over the pears. Two or three days later, put pears and all over the fire, let them come to a boil, and they are ready for use. They are easily kept in stone jars, if held under the pickle with a plate, and carefully covered with oiled paper closely tied down around the edges,

CANNED PEARS

Make a syrup of granulated sugar and water, letting it boil until all the scum has been removed. Do not make it too sweet. The best canned pears are put up in a syrup made of one cupful of sugar to a quart of water. Pare and quarter the pears, and throw them into the boiling syrup, taking care not to crowd them. Let them boil until they can easily be pierced with a fork. There is a great difference in pears in respect to the amount of cooking required, but they never cook as quickly as most fruit. Dip them carefully into glass jars as when done, and seal them as you would any other fruit.

CANNED PEARS (2)

Place a folded cloth in the bottom of your steamer, and then put in a few layers of pears, which have been pared, cored and quartered. Cover the steamer closely, set it over a kettle of boiling water, and steam the pears until perfectly tender, then pack them in hot glass jars and pour boiling syrup over them. Stand the jars in the steamer and let them steam for half an hour—not so long if you can cover the steamer; then screw down the lids as closely as possible. A few spoonfuls of lemon juice added to the syrup will greatly improve the flavor of the pears.

CONSERVED GRAPES

Grapes that are just beginning to ripen are best for this purpose. Pick them over carefully, and scald them quickly, then to five pounds of the grapes add five pounds of sugar, the juice from five large juicy oranges and two pounds of good raisins. Cut the orange peel into bits and boil it in a very small amount of water for a few minutes, until the oil is extracted, then drain the water off and throw it away. Add the peel to the grapes. The raisins should be chopped and seeded before being added to the grapes. Let all boil for twenty minutes, then put away as you do the spiced grapes.

A nice jelly is made by boiling all together, without the sugar for several hours, then straining it and adding the sugar to the juice. It is called a jelly, but it is about half-way between jelly and marmalade.

GRAPE JELLY

Stew the grapes, after picking them from the stems and rinsing them carefully, then pour off the juice and strain through a flannel cloth, being careful not to squeeze them the least little bit, for even a small portion of pulp would give your jelly a cloudy appearance. Add the sugar hot from the oven, and after the juice has boiled for fifteen minutes, then let it boil five minutes longer and pour it into the jelly glasses. Set the glasses on a wet towel before pouring in the jelly. Green or ripe grapes may be made into jelly, or grapes that are partially ripe, and you will find that grapes combine well with many other varieties of fruit, giving as many different flavors as you have of combinations.

GRAPE MARMALADE

Prepare the fruit as for jelly, but press the pulp through a fine sieve, discarding only the seeds and skins. Return the pulp to the kettle and add two-thirds as much sugar as for jelly. Let it boil until of the required consistency, then seal while hot.

GRAPE CATSUP

Take two quarts of grapes after they are removed from the stems, wash to remove whatever dirt may adhere to them. Put in a graniteware sauce pan, pour over them one quart of vinegar and cook until grapes are soft, then rub through a sieve. Return to sauce pan, add one and a half pounds of brown sugar, one tablespoon each of cloves and cinnamon, one-half tablespoon of salt, one-fourth teaspoon of cayenne pepper(more or less as may suit the taste). Cook until of the consistency of tomato catsup. Put into wide-mouthed bottles or glass cans.

CANNED GRAPES

Pick grapes from stems without breaking their skins, and fill jars. Pour over them a hot syrup made of one cupful of water to two cupfuls of sugar. Seal. Taste like fresh grapes.

CRAB APPLES

Six quarts of apples, one and one-half quarts of sugar, two quarts of water.—Put the sugar and water in the preserving kettle. Stir over the fire until the sugar is dissolved. When the syrup boils, skim it. Wash the fruit, rubbing the blossom end well. Put it in the boiling syrup, and cook gently until tender. It will take from 20 to 50 minutes.

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King Construction Greenhouses

For Vegetable Growers

IT is claimed that the earliest and finest crop of Field Tomatoes raised in the Dominion this season, 1909, was from plants grown on the ground in King Construction Houses, no beds or benches used. Will any disputing this claim please send in their record?

The record for Inside Grown Tomatoes in the neighbourhood of Toronto in King Construction Houses is $4.35 per lineal foot of a King 21 ft. 8½ in. House realized in three months from time of planting to August 1st. Will any who can beat this please communicate?

Houses of F. V. Melcalf in the great Ironequpit Vegetable Growing District, in which nearly 1½ miles of King Greenhouses were erected in 1907

The above cut illustrates the general transformation in style and size of houses as adopted in this district. The larger house with eaves as high as the ridges of the old style alongside being King Construction.

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Peach Growing in Niagara Township

IN the magazine section of the Toronto *Globe* of Saturday, August 14, appeared a picture of a unique summer house on the Niagara River, near Queenston Heights. In this picture were shown the wheels from a wagon which carried peaches from the first commercial peach orchard planted in Canada, about 100 years ago, by James Durham, a U. E. Loyalist, who came from Pennsyvania, about the year 1786. Mr. Durham received a Patent, or Crown Deed for this land, dated October 31st, 1803, it being Lot No. Nine, Niagara Township, one mile below the famous battlefield of Queenston Heights on the Niagara River.

This lot, comprising 100 acres, posseses the unique distinction of having had but three transfers since the Patent, — James Durham, Sr., to James Durham, Jr.; executors of James Durham, Jr., to John McClive; and John McClive to C. E. Fisher, the present owner, who is Registrar of Deeds for the County of Lincoln at St. Catharines, and secretary-treasurer of the Niagara Peninsula Fruit Growers' Association.

Mr. Fisher purchased this farm in April 1882. On the farm, at the presnt time, stands the building, in an upstair room of which Col. Macdonald (aide-de-camp to Sir Isaac Brock) after he received his death wound, passed away. This building was in uso as a hostelry at the time of the war of 1812, and was frequented by the soldiers and travellers of those stirring days. Afterwards it was converted into a dwelling and was in use as such until the summer of 1889, when Mr. Fisher had it moved a short distance back from the site it occupied, to where it now does service as a carriage house and workshop. Visitors frequently call at the farm and ask to be shown the room where this gallant soldier succumbed to his injuries.

Notwithstanding the lapse of so many years (nearly a century) old coins are found every summer on the farm near where the buildings formerly stood, and bullets and indian arrow heads of many sizes, are picked up very often, by the men working in the orchards. As an evidence of the wonderful fertility of this soil on the frontier, adjoining Niagara River, one of the best peach growing sections in all Canada, this land, which has been growing this luscious fruit for 100 years, has an orchard in bearing now, on which probably the first peach trees grown in Canada, were planted, and this year the crop bids fair to be the largest that was ever grown on the land.

Some of the trees in this orchard have been bearing over 20 years and the fruits on these old trees this year, promises to be as good as any before grown. These trees have borne as high as 33 eleven-quart baskets of prime quality peaches, which have sold at a net profit to the grower, of over $1.25 a basket. The preesnt owner has never had an entire failure of peach crop. Only once since the orchards began bearing in 1887, has the crop dropped below 1,000 baskets, that being the year 1889, when the peach and grape crops were nearly all destroyed by a hard frost, on the night of the 31st of May, many trees and grape vines being killed outright. In that year, peaches of extra fine quality, from this orchard, were sold on the commission market in Toronto, for $2.75 per eleven-quart basket. Once or twice since then, on an off year in other peach growing sections, has the price reached that figure, for the extra fancy article.

In the season of 1891, Mr. Fisher shipped many baskets of this quality of peaches to James B. Stafford & Bro., Fulton Market, Buffalo, for which he received $2.37 net, put on the cars at Queenston station. These peaches retailed in that market for $3.50 a basket.

These facts, teach several important lessons, showing among other things the inexhaustible nature of the soil; feed it carefully, cultivate judiciously and systematically and it will respond liberally. The soil will do its part, if the tiller does his. From this farm, now known as "Dulverton Fruit Farm," managed by Mr. Fisher's two sons, H. St. Clare, and C. Howard, it is expected nearly 25,000 baskets of fruit of different kinds, will be shipped this season, the large proportion being peaches. These bring the very highest price in Toronto and other markets. Results as to price and production are only achieved by the most thorough and careful attention to all the little details, in connection with fruit growing. The pruning, spraying, thinning and cultivation, are important factors, and then the most rigid and careful attention is given to putting the fruit up in a neat and honest manner. Fruit growers, like christions, are "known by their fruits." No fruit is shipped that the growers on this farm would be ashamed to meet in the consumer's home. It is not all fancy and large, but the face of the package evidences the contents of the basket.

Co-operative Growers Meet

An executive meeting of the Co-operative Fruit Growers' of Ontario was held in Toronto during the Canadian National Exhibition. Representatives were present from all parts of the province. Norfolk county reported a light crop of apples; Georgian Bay, one half more than last year with quality good; Oshawa, quality variable; Cobourg, medium crop; Georgetown, medium, mostly Spys; Trenton, less than last year with fruit small.

The executive strongly recommended that the associations do not pack many No. 2 fall varieties and also advised them to put up all hail-marked fruit as No. 2. It is expected that there will be a large proportion of small grades and culls. The executive discussed prices for this year. Specific figures were decided upon. These indicated that the associations expect good prices for fruit of good quality.

As peonies may be planted successfully in October, and as various requests have been received, asking where Mr. R. B. Whyte's "best 12 peonies" may be secured, it will interest amateur horticulturists to know that Mr. Whyte will furnish the information if requested. His address is Ottawa. Mr. Whyte is a specialist in peonies.

The Hespeler Horticultural Society found a marked improvement in the gardens of its members, when they were judged this year. The method followed by this society was told in THE CANADIAN HORTICULTURIST for November, 1908. Much interest is taken in the work. The directors and the society deserve great credit for their enthusiasm and for their achievements.

A new catalogue of nursery stock has just been issued by E. D. Smith, proprietor of the Helderleigh Nurseries, Winona, Ont. In it are listed a full line of fruit and ornamental trees, shrubs, roses, hardy border plants, and so on. Descriptions of the varieties have been carefully prepared and are reliable. Much useful information on the culture of these things is given. It is a useful book for any horticulturist to have in his possession. It is now ready for distribution and will be sent free to all persons that make the request.

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Vol. XXXII NOVEMBER, 1909 No. 11

Grape Culture in Cold Districts*

W. T. Macoun, Horticulturist, Central Experimental Farm, Ottawa

THE object of this paper is to show that the grape can be grown for home use over a very wide area of country outside what are known as the grape districts. Grapes grow wild in Canada in the provinces of Nova Scotia, New Brunswick, Quebec, Ontario and Manitoba. Two species are found, namely, *Vitis riparia* which is found in all the provinces mentioned, and *Vitis aestivalis*, which is confined to south-western Ontario.

Vitis riparia is a very hardy species. It is found in Manitoba as far north as latitude 52 degrees, where the temperature falls very low in winter. Near its northern limit in Manitoba it is found in the valleys of the Red and Assinaboine rivers and at the south end of Lake Winnipeg. The ability of this wild species to survive and ripen its fruit in the cold climate of Manitoba should be an incentive to the plant breeder to endeavour to originate varieties having large fruit of better quality than this wild species which will be hardy enough to be grown without protection as far north and in as cold districts as *Vitis riparia* grows wild. In the meantime we must be content to grow in as many places as we can the varieties which, with a little protection in winter, will ripen their fruit.

At the Central Experimental Farm, Ottawa, nearly 150 miles north of the Niagara peninsula, we have tested in the vineyard about 200 named varieties of grapes. It will be of interest to know the number of varieties which ripened in each of the last five seasons. In 1904, which was a very favourable year, there were 32 varieties ripened; in 1905, 90; in 1906. 100; in 1907, 26; and in 1908, 118, or an average for the five years of 73 varieties.

When the seasons are very favorable, most of the best commercial grapes grown in the Niagara district ripen at Ottawa. When the seasons are moderately favorable some of the best commercial varieties do not ripen. The varieties which are recommended for Ottawa or places where the climate is somewhat similar are:

Black:—Early Daisy, Manito, Moore, Worden, Wilder.

Red:—Moyer, Brighton, Delaware, Lindley.

White:—Golden Drop, Winchell, Diamond.

Of these varieties, the Worden, Wilder, Brighton, Delaware, Lindley, and Diamond do not ripen thoroughly in the most favorable seasons. The others ripen practically every year. It has been observed that some varieties which are among the earliest to ripen in warm seasons are in unfavorable seasons later in ripening (if they ripen at all) than some which in a warm season are not so early. In other words, the amount of heat changes the relative earliness of the different sorts.

The following varieties of grapes ripen practically every year:—

Very Early:—Florence, Early Daisy, Manito, Champion, Pattison, Golden Drop, Jewel, Bonne Madame (probably Bonne dame de Vignala).

Early: — Moyer, Moore, Winchell, Telegraph, Brant, Canada, Hartford, Dracut Amber, Peabody.

Of those in the earliest group, Florence, Early Daisy, and Champion are said to be of pure Labrusca parentage. Pattison is probably Riparia and Labrusca. Jewel and Golden Drop have blood of Labrusca, Bourquiniana, and Vinibrusca. Manito is a combination of Larusca, Vinifera, Bourquiniana, Lincecumii and Rupestris, and Bonne Madame is pure Vinifera. It is interesting to note that blood of six different species of grapes are in these eight earliest varieties. If with this extreme earliness and ability to ripen even in the coolest seasons at Ottawa there were added the hardiness of the *Vitis riparia*, grape growing would be easy and perhaps commercially profitable in the colder districts where the temperature does not fall more than five or six degrees below freezing before the second week of October. In the year of 1903, one of the most unfavorable for grape growing in the past twenty-one years at Ottawa, nearly all the varieties given in the above list ripened before October 1st.

During the twenty-one years in which grapes have been grown at the Central Experimental Farm, there has been little winter killing of the vines when protected with from four to six inches of soil, when the temperatures have been very low with little or no snow on the ground. The vines are trained to two arms branching near the ground for the greatest ease in covering. Those arms remain for two, three, or perhaps more years, being replaced as soon as they lose their pliancy or have too many dead buds by new arms which may be replaced in alternate years.

If the early ripening varieties of grapes which have been mentioned escape the spring frosts little need be feared from winter injury. The swelling buds and young shoots of grape vines are very easily injured by frost, hence the greatest precaution should be taken to prevent injury. After many seasons' experience it has been found desirable to leave the vines protected with soil as long as possible without injury from moulding. The buds are swelling rapidly and in some cases have broken when the vines are uncovered at Ottawa during the second week of May and only twice in twenty years has there been sufficient frost after uncovering to injure them. The later spring frosts are expected, the longer should the vines be kept covered.

If the warmest soils and a southern exposure are chosen for the vines, if the earliest ripening varieties are grown, and if the vines are protected with soil in winter and left protected until as late in the spring as growth will permit, there is no good reason why with the varieties now available the culture of grapes for home use should not be extended far north in Canada and the United States, and even grown in some parts of the prairies of the north-west, where at present it is supposed they cannot be grown successfully.

At First Sight

I received a sample copy of THE CANADIAN HORTICULTURIST recently. Enclosed please find $1 in payment for a two years' subscription. It is just the paper I have been looking for.—Mrs. Jas. A. Stewart, New Westminster Co., B. C.

*A paper read at the conference of the American Pomological Society, held at St. Catharines, Ont., in September.

The Protection of Strawberries

Brenda E. Neville, Cottonwood, Saskatchewan

STRAWBERRY culture is in its in- July mine was the only exhibit of fancy in Saskatchewan. Only last strawberries shown at Regina. I stood near the small fruit exhibits, and listened to comments. Many people passing the strawberries remarked: "Of course such fruits cannot be grown here; they are imported." Such is the opinion of the majority. Only a few people know that every farm garden might have its strawberries as well as cabbages.

Strawberries should be set in spring, to allow them the most time possible to become well rooted before winter. The greatest difficulty we have to contend with is dry weather, in the fruiting season, and in the fall.

During the summer the greatest care should be used to prevent any exposure of the crowns of the plants to the hot dry winds. Cultivation should be kept up all summer, but the soil should not be stirred to any depth after August.

If the fall season is very dry, a little artificial watering will help. The water should be given in the evening, and the ground thoroughly soaked, not just sprinkled. About a day and a half after the watering, cultivate on the surface. It will be beneficial to water in this way once a week till the ground commences to freeze hard at night.

MULCHING

As soon as the ground freezes well, so that it does not soften through the day, a light, loose covering of clean wheat straw should be applied. Do not make the covering very deep at first. Wait for a good fall of snow. When that has settled and become a little hard with a few "40 below" nights, then put on a covering fully ten inches deep of more wheat straw. If it is hard to keep the straw from blowing away, spread a little brush over it.

It is not the cold in winter that kills strawberries. It is the alternate freezing and thawing in spring that does the harm. Therefore, do not remove the strawberry covering too early in spring. It will be late in the spring, perhaps well on in May, before the ice is melted underneath the straw. Feel under the straw once in a while, and as long as ice remains or the ground is frozen, leave the straw alone. When the ground finally thaws out, remove the straw very gradually. Separate it over the plants first to let in the air. Quite a lot of straw may be left between the rows until after the fruit ripens. It keeps the fruit clean, and shelters the plants from the winds.

As spring frosts are prevalent here, rather late varieties of strawberries should be chosen, so that they will not bloom before the damage of frosts is over. Senator Dunlop and Bederwood are two of the best for our climate.

Fall Cultivation

R. W. Starr, Wolfville, N. S.

I have been advocating for many years the system of fall cultivation of orchards, believing it to be the best method. I will give a few reasons why orchards should be cultivated and fertilized in the autumn, wherever possible.

By plowing say five or six inches deep after the leaves have fallen and harrowing to a fine tilth you have an "earth dust mulch," which is one of the best protections from frost. You will have buried all the spores of the black-spot which may be deposited on the leaves, which is undoubtedly the main source of propagation in the spring. You will also have disturbed, and buried deeper, any cocoons of canker worms, codling moth and other insect pests that may harbor on or near the surface soil. And you will have placed the cover-crop or other vegetation, with the leaves, where it will be converted into plant food, and made ready for the early growth of the trees in the spring.

If you apply such fertilizers as barnyard manure, ground bone, muriate of potash, or others of those partially insoluble commercial manures and harrow in, you will assist nature to provide the trees with an early spring breakfast and enable them to commence the season with vigor and pass the period of what is sometimes excessive, blom, without the exhaustion that we frequently observe, and that is followed by failure to set fruit, or by excessive dropping after it is set.

If this system is propefly carried out in the fall, the disk is all that is required in the spring to get a mellow surface, and if it or the harrow are used, say, once a week to conserve the moisture, until the time has arrived to sow the cover crop, the orchardist may congratulate himself when the latter is in that his work for the season, so far as cultivation is called for, is done.

As there can be no rule without exceptions, it may be found practicable to follow this system on side hills or where the soil washes badly in the winter. There you may have to leave the cover crop to bind the soil until spring; if so, then do your cultivating and manuring at the earliest possible date, for it is the early and vigorous growth in the spring, and the mature, well ripened wood and buds in the fall, that ensures the health of our fruit trees through our changeable winter weather.

A Terraced Peach Orchard

Editor, THE CANADIAN HORTICULTURIST: It has been stated that an amateur should not attempt fruit growing until he has gained some experience. It may be of interest, therefore, to some of your readers to know that, coming from Central Africa where I was engaged in an entirely different occupation, I have, as the accompanying illustration shows, so far made a good start.

In this orchard there are 1,500 peach trees besides apple, cherry, plum and pear trees. The terraces shown are each 990 feet in length. The peach trees are eighteen feet apart and the terraces are the same in width. The trees are planted in the middle of the terraces. The lower side of each terrace is planted in lucerne; only the top side is cultivated, being frequently harrowed and also plowed twice a year. For this purpose, I find the spring-tooth harrow far better than any other implement. It cultivates deeper than others and will stand very rough work.

A Twenty-acre Orchard, Peachland, British Columbia
Note the terraced hillside.

The terraces were made because the hill was too steep to work. They face the east and get the early morning sun and warmth. Terracing means good drainage; also, the snow collects there and does not drift away.

The trees have done remarkably well, many showing over six feet of growth for the past season. This I attribute to constant cultivation. The trees were irrigated only once during the year. I believe in severe pruning to make a tree strong enough eventually to yield twenty boxes of fruit.

In this orchard there are several varieties of peach trees planted. Some of them are Alexander, Admiral Dewey, Crosby, Fitzgerald, Early Crawford, Triumph and Elberta. These all show better growth than trees on the flat land. —F. Aitken, Peachland, B.C.

Preparing Land for Planting

Various methods of preparing land for planting fruit trees are practised. Some growers commence the preparation of the soil one or two years in advance while others plant almost in sod. Readers of THE CANADIAN HORTICULURIST are asked to discuss this question through these columns, giving their experiences and stating reasons why they would advise others to follow their practice. Growers in all the provinces are invited to contribute their views. The following letter was received recently from Mr. W. E. Corman, Stoney Creek, Ont.;

"In the first place, I subsoil the soil both ways fifteen inches deep and then cover the soil with refuse lime and ashes from the kilns at the rate of three tons to the acre. This material costs us thirty to forty cents a load of three tons. We sow it from the waggon with a shovel. After cultivating it in, the land is rolled and is then in good shape for planting."

Lombardy Poplars

We are thinking of planting Lombardy poplars and would like to know any argument against their use; also notes as to planting. Our prevailing wind blows in summer from the south. We are thinking about planting the trees along the south fence of the orchard.—F.O.C., Slocan, B.C.

The Lombardy poplar makes a very good wind break as the trees grow tall, and as the branches are thick, they afford considerable protection. In some parts of the country poplar becomes diseased and is also injured by winter, which are against the use of this tree where these occur. If the trees were set out about twelve feet apart in a single row it would be a good distance. The poplar is one of the easiest trees to get established so that no special preparation of the soil is necessary.—W. T. Macoun.

Growing Strawberries in Alberta

James Chegwin, Leduc, Alberta

THREE years ago, I came to Alberta from Ontario where I had grown strawberries for over forty years. In these three years, I have given them

A Strawberry Plantation in Alberta

On farm of Mr. James Chegroin, Leduc. In a later issue, Mr. Chegroin's methods of cultivation will be described.

a trial and my hopes of success have been fully realized.

In May of the first year, I planted about 8,000 Williams plants. Some of the largest plants were allowed to bear fruit, which is contrary to my usual custom, as I usually cut off all the bloom the first year, but the plants grew so well that I thought I might risk getting some fruit off of them for our own use. That season we picked about ninety quarts of fine berries.

The plants were covered with straw as soon as the first hard frost came and were not uncovered until time to dig the plants for sale the next spring. All came through the winter in good shape. I uncovered the rows only as I wanted to dig them, covering the ones left to protect them from the June frost which every one said would kill my first bloom, leaving two rows uncovered as an experiment. To my surprise, that June frost never came.

On the uncovered rows I had a good crop of berries. The balance of the patch I kept covered until I thought all danger of frost was past. They came out in bloom fine and I thought I would have a splendid crop as the ones I had uncovered first were forming fruit. Just then came nine days of successive rain. It rained hard and there was no sunshine; consequently, the pollen was washed off the bloom and the fruit did not come to perfection. Much of the fruit was ill-shaped.

I find that the Williams berry does not fertilize here as well as in Ontario. There, it does well planted alone, but here it is better if another staminate variety that is a heavier pollenizer is planted with it, if the two bloom about the time. On the two rows that I had left uncovered, the fruit had set before the rain came. The next spring, I brought from Ontario nine other varieties and from Michigan, eleven varieties. I had very poor luck with all of those as they seemed to heat. With many of the varieties I did not get more than fifteen per cent. of the plants to grow. I got enough, however, to test them all and have picked about twelve varieties as most suitable for this country. All of these are staminate kinds, as I do not think the pistillate varieties will do as well here as there are so few bees in the country to carry the pollen and so much wet weather at blooming time. This year I had a good crop of berries as fine as any that I ever got off the same varieties in Ontario. I am satisfied that strawberries can be grown to perfection in Alberta, if given proper care and attention.

Gravelly and somewhat stony soils, fairly rich in plant food, are excellent for apple growing. The gravel and small stones assist in the drainage.

The Grand Display of Fruit made by the St. Catharines Cold Storage Company at the Niagara District Horticultural Exhibition

This exhibit was awarded a Wilder silver medal by the American Pomological Society. It consisted of 36 boxes of apples, 78 boxes of pears, 75 boxes of peaches, 18 boxes of plums (in four-box trays), and 35 boxes of tomatoes. These were all packed in cases, western style, and were grown by members of the St. Catharines Cold Storage and Forwarding Co. This company has sent so far this season 125 cars of mixed fruits in baskets and boxes to the West, and expects to reach 150 by the end of the season.

How to Grow Violets

C. M. Bezzo, Berlin, Ontario

VIOLETS bloom in early spring and early fall and may be planted in either of these seasons, usually blooming about six months from the time they are set outdoors. Violets planted out in September will be found in bloom almost as soon as the snow is off and the winter covering removed; while those planted in April or May will commence blooming about September, and continue right up in the face of winter, starting again early in the spring.

Flower Show by Members of Stratford Horticultural Society Last August

An excellent feature of the horticultural society work is the holding of flower shows. Many photographs of these are received by THE CANADIAN HORTICULTURIST, but space being limited, will not allow the publication of all. The one published above is typical of the many. It shows that the Stratford Horticultural Society is doing good work.

The violets of our ancestors were much more hardy and robust and would stand more abuse and thrive with less care than the present day highly bred, aristocratic members of the family but the quality of bloom was in inverse ratio to their hardiness.

In the fall when the ground is freezing up for the winter spread over the bed a two or three inch layer of straw, coarse manure well shaken up or any other coarse litter to soften the keen edge of Jack Frost's teeth during the severe winter weather. But those varieties which are listed as semi-hardy, such as Marie Louise and Stanley White, are not suited for outdoor planting in the north temperate zone.

The most satisfactory place to grow violets is the cold frame, as they bloom much later in the fall and earlier in the spring. But do not close the frame for the winter at the first sign of frost, as a little cold weather at this time will be good for them, preparing them for the more severe weather later on. If the nights are cold and the days fine, the sash should be closed in the evening and opened again in the morning, keeping it open during the day.

When the weather becomes sufficiently cold to indicate that our "Lady of the snows" is about to take her annual plunge into the real Canadian winter, close the sash and cover with boards. This will afford not only additional protection from the cold, but will resist the weight of snow which is likely to accumulate during the winter, and prevent it crushing through the glass. Whenever the weather is fine enough during the winter, raise the sash a few inches to admit light and air, and the plants, in the spring, will show their appreciation of these little attentions by the earliness and quality as well as quantity of their bloom.

Violets are usually propagated from runners, although they may be raised from seed or cuttings. There are a number of disadvantages about raising violets from seed without any corresponding advantages, especially for the amateur. In the first place it takes about a year for the seed to germinate after it has been planted; consequently, the ground where it is cannot be used for any other purpose during that time. Another disadvantage is that seed-grown violets do not always come true in form or color. Taking everything into consideration, the amateur, unless he wishes to do some experimenting, will find propagation from runners much the more satisfactory way of increasing the supply. They may also be propagated by division of the old crowns, but this method is not recommended as the old plants become worn out and although the plants resulting from this division may at first show much of the old-time vigor it is soon lost, and if this method is continued for any length of time, the resultant plants will have deteriorated into the most common stock.

LOCATION FOR BED.

For the violet bed select a particularly shaded location. Dense shade is not good for them, but they must be protected during the hottest part of the day or the sun will scorch them. A situation that admits the early morning sun or after it has well passed the meridian will be suitable. Prepare the bed by digging as deeply as can be done with the spade or digging fork, making the ground loose and fine all the way through. Throw on enough air-slaked lime to cover the ground. If the soil is clay or sandy add a couple of inches of leaf-mould or wood-dirt. As violets delight in this kind of soil, there is very little danger of adding too much. Add to this a two inch layer of manure so well rotted as to be almost indistinguishable from earth. Dig this all together, mixing thoroughly. If the soil is sandy and leaf-mold or wood dirt are not obtainable add more manure; if the soil is heavy clay, add sand to make it friable. The wood-dirt and manure not only supply plant food but assist in retaining moisture as well as in keeping the soil loose and porous.

The violet must never be allowed to suffer from thirst. The frequency with which they are watered must be regulated by the dryness of the season and the quality of the soil in which they are growing. If the soil is a good loam, well enriched with decaying vegetable matter such as leaf-mold, wood-dirt and well rotted manure, and has been dug fairly deep and the surface soil kept loose and fine, the same amount of water will not be required as would be the case if these conditions were less favorable.

Under all circumstances keep the surface soil loose and fine by frequent hoeings, especially after each grain or watering with the water pot or or hose. This not only keeps down weeds but admits air to the roots which aids very materially in counteracting certain diseases to which this plant is liable. During the severe hot weather spread around the plants a mulch of any coarse material to protect the roots from the drying action of the sun and to conserve the moisture in the ground.

The Winter Protection of Roses

By "Amateur"

AT this time of the year the beginner in rose culture is likely to be greatly concerned about the proper care of his plants, during the coming winter. The elaborate instructions for their protection, given by some flower specialists, whose knowledge is not always the result of experience, is apt to be discouraging as well as confusing. There can be no advantage in laying down and covering a plant so that you preserve it green to the tips, when the first thing you are to do in spring is to cut off those green tips within a foot or less of the ground.

An experience of a quarter of a century has taught me that for all but the tender teas (and these the ordinary amateur is better off without), the only protection necessary is to shorten back all growth of more than three or four feet to about that length, tie a stout cord around them top and bottom, and hill them up, say about six inches. Do this about the end of October, the object being to so stiffen the plant that it may not be broken down by the snow later on. After the ground has been frozen hard put a coat of manure (six inches is not too heavy) all over your rose bed .The rest you may leave to Nature with every confidence that in any ordinary Canadian winter there will be sufficent snow to protect your plants and that your losses, if any will be much fewer than if you attempt to cover them as directed by some flower specialists who seem to overlook the fact that the surest way to discourage the growing of any plant is to exaggerate the difficulties connected with its cultivation.

Everyone admires the rose, the Queen of Flowers; yet a collection of a dozen varieties is a rarity in most Canadian towns and villages. This is due largely to the general impression that the rose requires a special soil; that bugs of all kinds are ready to devour it and that the winter will finish any that the bugs overlook; whilst the fact is that roses can be grown in any soil short of pure sand, and that a little trouble will protect them from both bugs and weather. One thing is absolutely necessary, however, and that is a genuine love for the flowers. If you have everything else and lack this, you had better grow carrots.

One Side of a Garden Where Six Hundred Roses Bloom

Garden at Huron Registry Office. Photograph furnished by Mr. Wm. Coats, Goderich, Ont.

Planting for Winter Effect

D. W. Buchanan, St. Charles, Manitoba

PLANTING for winter effect naturally leads first to a consideration of the evergreens as the subjects of greatest value. Good use may be made also of those bushes that carry their ornamental fruits into the winter. Again, some trees and shrubs with richly colored bark are very ornamental in winter. Thus with these combinations there is no lack of material suitable for planting for winter effect even in our climate.

EVERGREENS

The evergreens are of first importance in any scheme for winter effect. In any country with short summers and long winters the evergreens should be freely planted. They afford an appearance of warmth and comfort that cannot be essayed without them. A mixture of evergreens and deciduous trees gives a beautiful effect at any season of the year and in large grounds is especially desirable for winter effect. Nature gives us some good examples of this in the mixed forests of northern Canada.

Our experience with evergreens in this country is rather limited as yet, as very little planting with these trees has been done beyond the use of the native spruces. We have some trees, however, that we know we can depend on, and we will have more as time goes by.

Our native spruces, of which the white spruce has the preference, take first rank among the evergreens. The balsam spruce is also good, and being a native, is sure to be hardy in most locations.

Recently the Scotch or European pine has received some attention from planters of evergreens and it is succeeding in many places. This tree seems destined to become thoroughly acclimated here. In trees grown from imported seed, there is always a danger of getting seed from mild climates or low altitudes. If evergreen seed from high altitudes can be secured, the prospect for hardy stock is greatly increased. We already have Scotch pine trees producing seed in Manitoba, and consequently, so far as this tree is concerned, are in a good position to have it become thoroughly established.

The Austrian pine is favorably spoken of by some planters. My own experience with this tree is limited and that experience has not been of a nature to lead me to recommend it.

The Colorado blue spruce has been planted to a small extent in this country and has done well in some locations. If seed from the higher altitudes is obtained, results with this beautiful tree will be promising.

The Mountain pine of Europe also promises to succeed here, in at least favorable locations. The dwarf form of this tree is an interesting subject, where a small tree or evergreen shrub is required. Some of these little trees have proved quite hardy in our grounds for several winters past.

Another dwarf evergreen is the savin juniper, which will be found useful in

many ways, and which appears to be fairly hardy. The Virginiana juniper or red cedar is a beautiful plant, but of doubtful hardiness, though a native of Minnesota. Possibly plants obtained from the extreme northern limit of its growth in Minnesota might show better results than the nursery stock we have so far been able to procure. The latter have not been altogether hardy in our grounds, but a few specimens seem to be increasing in hardiness as the years go by. We must not overlook our native arbor vitae, or white cedar as it is commonly called, in making up a list of promising evergreens.

Our only hardy native pine for prairie planting is the Jack pine, which is easily handled. The white and red pines, although natives a little east of us, have not succeeded in prairie planting, but in well protected locations in eastern Manitoba they would be worth trying.

Of the berry-bearing plants we may ment a few. Our native viburnum, commonly known as the high bush cranberry, is a handsome shrub in foliage, flower and fruit, and the bright colored berries hang thrugh the winter without impairment. The celastrus vine is another native plant whose bright scarlet fruit renders it attractive in winter. The rugosa rose, so beautiful in leaf with its rich, glossy green foliage, is scarcely less attractive in autumn when the frost has colored its leaves, and still in winter it is ornamental in fruit, with its scarlet rose apples of enormous size. The barberries are not always entirely hardy here, but they are sufficiently hardy to be safely planted in most locations. When they fruit their bright colored berries will hang all winter.

Of the trees and shrubs with bright colored bark or branches, the willows afford quite a variety alone. It is worth noting that the bark of many of these plants is much brighter in winter than in summer, as if nature had specially intended them for winter effect.

The red cornus or dogwood, the bark of which is a dull red in summer, takes on a more brilliant color in winter. The same is true of the willows. In the latter trees we have the bright yellow of the golden, the greenish bark of the laurel, the brownish red of the acutifolia, and the red of the Britzensis. If these willows are cut down to the ground once in two or three years, they will grow up rapidly from the root, and make dense shrub-like growth which are very handsome in winter, with an effective mixture of the different varieties.

A native tree which is effective in winter is the native or canoe birch (*Betula papyrifera*). This tree is particularly effective when planted among evergreens, its white bark and slender branches contrasting finely with the dark green and massive form of the evergreens.

The Care of Lawns

J. T. Rose, Brantford, Ont.

As I stated in one of my articles on the treatment of bulbs and flowers in a previous issue of THE CANADIAN HORTICULURIST, I am an advocate of heavy feeding on barn-yard manure, especially cow manure. Early in the season or spring when the last snow has disappeared, I spread over my lawn, manure to the depth of two inches and every few days, take a rake and turn it over until I find the grass getting a little white. I then remove the manure to my flower bed and dig it in. I start quite early with the lawn mower and do not confine myself to certain days for cutting. As soon as I see that the grass looks a little long or ragged, I start the lawn mower. It improves the appearance and also makes the grass grow thicker. I have a grass catcher attached to my mower. If the cut grass is left on the lawn, it gives it a brown appearance. Some one may say that this is a mistake. Not when you have made the ground good and rich. I give the lawn a top-dressing of earth mixed with wood ashes, lime and bone meal every two or three years.

Apply plenty of water. Never let your lawn get brown. If you do, it will take time to bring it back to the green state. One day when I was cutting my grass, my neighbor said, "You do that too often," but I failed to see his logic by the appearance of the lawn. I might say that I keep the grass trimmed closely until the cold weather comes, so that in the spring I have no old, long grass to bother me.

I apply another heavy coating of manure to the beds about the middle of May. In a week or two from that date or according to the season, I plant out geraniums, canna and border plants. When they get to a fair size, I spread manure around them which acts as a mulch. Every time I water the plants, they get a little to eat as well as drink. My flowers and lawn have been the admiration of persons from all parts of the city. Recently I planted my bulbs for spring flowering.

Easter Lilies Bloomed Twice

Editor, THE CANADIAN HORTICULTURIST:—I would like to ask the numerous readers of THE CANADIAN HORTICULTURIST if they have ever had the Bermuda or Easter lily to bloom twice within six months which this year was my experience. The last week in last April, I was given six Easter lilies in pots just done blooming.

I cut the stalks down to within two inches of the bulbs and planted the bulbs ten inches deep in rich soil on the north side of a cedar hedge. Five of them grew well and came into bloom within five months of planting in the garden. The nights being cold, I had to develop the blooms in tepid water in the house.—Walter Warner, Woodstock, Ont.

A First Prize Winner in the Brantford Horticultural Society's Lawn and Garden Competition

In the work that the horticultural societies of Ontario are doing, lawn and garden competitions play an important part. Not only do they incite friendly rivalry among the members, but also they encourage the improvement of the homes of non-members. Many of the towns and cities of Ontario are rapidly increasing in beauty through these competitions. The illustration shows the residence of Mr. J. T. Rose, Brantford, who tells in the accompanying article how he brought about the results shown.

Well Planned Grounds and Driveways in Cobourg, Where Some of Ontario's Most Beautiful Homes are Situated

This illustration shows one of the driveways into the grounds surrounding "Strathmore," the beautiful home of Mrs. Charles Donnelly, at Cobourg, Ont. This handsome property was purchased by the late Charles Donnelly, formerly of Pittsburg, Pa., from the late Judge Clarke, C. P. R. Solicitor. About five years ago the residence was remodelled, and the park-like area, in which it is set, was laid out with artistic effect at a cost exceeding $100,000. All kinds of flowering shrubbery can be seen here in profusion, including 300 rhododendrons. And yet nothing is more beautiful than the ancient and majestic elm, whose arms have stretched forth a welcome to Strathmore's guests these many years. It appears in the left fore-front of the picture. The cut was borrowed from the last report of the Horticultural Societies of Ontario.

Lawn and Garden Hints for November

REMOVE all crop refuse and rubbish from the garden and burn it. Spade or plow the soil and turn under a good application of manure. Leave the surface rough so that frosts and freezing may have the best chance possible to pulverize the soil and to kill insects that hibernate there. If the soil needs it, install a system of underdrainage.

Dig the late celery and store in the cellar. Pack the stalks upright and close together with the roots in sand which should be kept fairly moist. When applying moisture to celery in storage, do not sprinkle the leaves or stalks.

Take up some rhubarb roots for forcing in the cellar. Leave the roots outside in a cold-frame or in a fence corner until they freeze and then place them in the cellar. When the crop is done, throw the old roots out as they soon decay and become ill-odored.

Beets, carrots, parsnips, salsify and winter radish keep best in the cellar when buried in light earth. Turnips and potatoes can be stored without covering. Leave some parsnips and salsify outdoors all winter for use next spring.

Store onions in a cold, dry cellar on slatted shelves where there is plenty of ventilation.

FALL WORK WITH FRUIT

Do not be in a hurry about mulching the strawberry bed but do it as soon as the ground freezes hard. Apply a coating of clean straw. Manure will do but it is apt to contain weed seeds.

Place a few forkfuls of manure around the small fruit bushes and around young fruit trees.

Currants and gooseberries may be planted this month. Take some cuttings from the new growth on the old bushes for planting next spring. Store these cuttings in sand, butts upperwards, so that they will callous. Currants and gooseberries may be pruned any time after the leaves fall.

Have the soil around the fruit trees clean so that mice and other pests will have no place of harbor. To be certain that vermin will not girdle the trees, wrap them with building paper and throw a small mound of earth around the bottom.

OUTDOOR GARDEN AND LAWN

Protect the rose bushes. Read the article on another page of this issue. Small tender shrubs may be protected by placing a barrel over them and filling with leaves or straw. Make holes in the barrel for ventilation.

Protect plants in the perennial border by covering them with leaves, straw or stable manure. Cover lightly and not until the soil freezes.

There is still time for planting hardy bulbs. When planted this late, however, the ground must be covered with straw or leaves held in place by evergreen bows in order to give them as much time as possible for growth this fall. Do not cover the bed until the ground

freezes about one inch. Bulb beds planted earlier in the season will be benefited also by having a mulch over them.

Dig the old flower beds and make new ones. Digging now will make the soil in fine condition next spring.

Top-dress the lawn with stable manure or with a specially prepared compost.

FLOWERS INDOORS

An indoor window box is useful for wintering some kinds of tender plants and for growing most anything that will grow inside. Have the box eight inches wide, six inches deep and of sufficient length to fit the window. Make holes in the bottom for drainage. Provide a tin tray to fit under the box for catching the water that soaks through. Support the box with brackets and attach the tray to the box with hooks. Place some broken flower pots over the holes in the bottom of the box and fill with soil.

Plant some more bulbs in pots this month. Those potted five or six weeks ago may be brought to the light if they are found to be well rooted. Bulbs cannot be grown successfully unless they have a good root system before much top growth begins. Freesias should be placed in only medium light until started.

Try some Chinese sacred lilies and some hyacinths in water bowls. Support the bulbs with stones.

As the days grow colder, increase the temperature for house plants if practicable. On fine days, give the plants a draught of fresh air. Sprinkle the plants occasionally to keep down red spider and use tobacco water for aphids. Do not water plants too often. Give them water only when they need it and that is when the surface soil becomes dry.

Prepare potting soil for use next year. Get some sods and place them in a square pile grass side downwards. On each two layers of sods place a layer of manure five or six inches thick and continue building until you have sufficient. Next year this will form the basis of a good potting soil for nearly all kinds of plants.

The Care of House Plants in Winter

A. V. Main, Gardener to B. Rosamond, Almont, Ontario

PLANTS that have been enjoying the outdoor weather should all now be indoors. Without the use of a greenhouse some care is required to keep plants alive and in good condition over winter. Good window light is essential to catch all the sun that is going.

Ferns do well in north windows and corners of a room. They do not like too much sun heat, although the winter rays would do no harm. Fibrous rooted begonias do first-class in the centre or side of a room, particularly the Rex type, with the beautiful marked foliage. Coleus or "foliage plants" as they are generally called, do best in the heat of the sun, to bring out the bright colors of the leaves.

Geraniums want good light and air to flower in winter. Geraniums that have flowered all summer need not be expected to bloom satisfactorily in winter. More attention should be given these fine blooming subjects. For winter effect, the buds should have been kept off all summer and the plants grown in good soil, and fully exposed to the sun to mature the wood. With a little artificial feeding after bringing inside, you will have a forest of large trusses. The geranium is a splendid flowering plant in winter.

Chrysanthemums need a little artificial manure to expand the buds. When done flowering, cut over and store in the cellar and procure cuttings in spring. To keep plants healthy, good drainage comes first; stagnant water is the first cause of disorder—leaves droop, become yellow, and you will have a weak, puny plant, an easy victim to insect pests. Plants in cans must have sufficient outlet for water. The idea must be for water to pass through the roots and soil easily and not to remain stagnant in the bottom.

A Fine Specimen of Amaryllis
Grown by Mrs. J. H. Horning, Hamilton.

Plants in vases or jardinieres should not rest on the base of them, for this is destructive. The water standing two and three inches in the jardiniere becomes sour. Raise the pots three inches, by means of a block of wood or other suitable article.

Worms clog the base of a pot with soil. To eradicate these insert two or three matches into the surface of the soil, heads down. These will bring them to the surface to face the foe. A pinch of salt in water also proves effective.

Plants naturally require less watering in winter, but where a house is kept warm, plants should not be allowed to droop their leaves. A heavy watering is better than driplets every day. Water in the morning to have the plants dry at night. Use water that is tepid. Palms, ferns and asparagus should not get too dry. These are evergreens and are making fresh leaves all the time.

Give the plants a turn around occasionally to make the growth uniform. To remove dust from the plants give them an occasional cleansing. A piece of soap, two gallons of tepid water and a wine-glassful of coal oil, well mixed, is a good home-made article to clean plants and to ward off bug, scale, greenfly and other pests. This mixture is good to clean palms, ferns and for all plants. Geraniums are the only subjects that I know to object to coal oil.

Should the plants get only slightly frozen, some severe night, they can often be saved by keeping them cool all day and away from the sun. Allow the frost to come out gradually. Removing them into a sharp heat in the morning is the worst possible thing to do. Layers of newspapers is a good protection to all plants in low temperatures. Keep all house plants on the dry side. They are then less susceptible to damage by frost.

Fumigation with Cyanide

Editor, THE CANADIAN HORTICULTURIST: In your September issue reference is made to the use of cyanide of potassium for killing white-fly in the greenhouse, and one ounce to 1,000 cubic feet is recommended. It is not necessary to use this strength to kill the white-fly and nine times out of ten one ounce to 1,000 cubic feet will injure the plants. We have had no difficulty in killing this insect with one ounce to 4,000 cubic feet.

In a house containing 12,000 cubic feet, we use the two jars containing the following: six ounces of water (by measure) three ounces of acid (by measure) and one and a half ounces of cyanide. The water is poured into a pint fruit jar, and the acid is poured into this. The jars are taken to the house to be fumigated and after everything is closed down the cyanide is quickly placed into the jar and the door closed at once.

We have had injury from the use of one ounce to 2,000 cubic feet under certain conditions. We never think of using one ounce to 1,000 cubic feet. My advice is to use not more than one ounce to 4,000 cubic feet and, if found necessary under your particular conditions, use more. If the cyanide is in large lumps we break it up some. It is then

wrapped in thin paper and dropped into the jar. When liberating the gas take every precaution.—W. S. Blair, Macdonald College, Que.

Market Gardening

At the convention of the Greenhouse Vegetable Growers' and Market Gardeners' Association of America, at Ashtabula, Ohio, in October, a splendid address was given by Mr. H. B. Fullerton, director of the Long Island Railroad Experiment Farms, Huntington, L.I., on the subject, "From Farm to Family Fresh."

Mr. Fullerton spoke of the market conditions in the city of New York, the greatest market in America, and declared that while producers were getting little or nothing for their products, consumers were suffering from a lack of fresh and healthy vegetables. He attempted to find out why and as a result of his investigations declared that it was a case of "too much middleman."

He then developed the idea of the "home hamper," a six-basket carrier, which he filled with various vegetables and shipped direct to consumers. These baskets he uniformly sold at $1.50. Mr. Fullerton told how this industry, which he started without hope of it reaching great proportions, had developed and how the idea had been taken up by growers in other sections of the country.

Grubs in Greenhouses

Specimens of grubs which cause much damage to lettuce, as they pull the young lettuce down under the ground, were received from a grower in Pennsylvania by Professor Surface. Should grubs be troubling growers in Canada, the following reply that Professor Surface sent to his correspondent will be of interest:

"We received the worms or larvae which you sent to us from your greenhouses and find them to be white grubs. These may be the young of one of several species of beetles; it is difficult to tell exactly which until they mature. It is probable that they get into your greenhouse by eggs laid by the adult or flying beetles in the manure which you are using as a fertilizer. I would certainly recommend nitrate of soda as a fertilizer for lettuce. This and dried blood will make an ideal combination, as the nitrate of soda is immediate in action and the blood is a little slower, and thus you will have a prolonged feeding ration for the plants.

"These larvae or grubs can be killed by putting holes in the soil about one-half foot deep, and two or three feet apart, and pouring one-third teacupful of carbon bisulphide into each, and closing it with damp earth. The fumes from this will kill the pests."

The Forcing of Fall Tomatoes*

M. M. Miesse, Lancaster, Ohio

TO grow a good crop of fall tomatoes it is necessary to have good plants of some good variety or varieties. We sowed our seed on August 11th and transplanted into flats on August 24th. The plants remained in flats until September 8th. Then we potted them in two and a half inch pots where they remained until September 28 and 30 when they were planted in their permanent beds.

The beds were mulched on August 15th with good stable manure to the depth of three or four inches which was kept moderately damp and in good growing condition. Two houses were plowed twice; the second plowing was back furrowed. The other house was plowed but once. Forks were used to draw the mulch into the furrow where it was tramped.

We liked this method better than the two plowings as the beds worked down better and were in finer condition for planting. We marked out our beds sixteen by thirty-two inches.

PLANTING

We distribute our wire anchors at every cross than the plants. In planting we use the trowel and place the plant on the anchor and plant together.

CULTIVATION

We cultivate our tomatoes every few days and keep the ground well stirred to let the sun and air into the soil. This puts on a healthy green luster and vigorous growth.

WATERING

We are particular not to overwater, but just enough to keep in a good growing condition until the time comes for the plants to set their fruit. Then we keep them on the dry side until they are well loaded with fruit. We follow then with plenty of water while the fruit is developing. We think the black rot is caused by not enough water at the proper time.

POLLENIZING

We pollenize the first two clusters by hand, using a spoon and a small stick. The third, fourth and fifth clusters get pollenized in trimming and training.

Young Tomato Plants in a Forcing House in the United States
Establishment of Mr. M. M. Miesse, Lancaster, Ohio.

FEEDING

After fruit is well set we use bone and sheep manure, half and half, worked into the soil lightly between the rows.

MULCHING

We mulch with stable manure to the depth of three or four inches. Then we use plenty of water. The tomato is a heavy feeder. The varieties grown are French Marvel, Hippard's No. 1 and Early Dawn.

*A paper read at the convention of the Greenhouse Vegetable Growers' and Market Gardeners' Association of America, held at Ashtabula, Ohio, last month.

There is pleasure and profit in gardening.

Photographs of market gardens are wanted for publication.

The Canadian Horticulturist

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OFFICIAL ORGAN OF BRITISH COLUMBIA, ONTARIO QUEBEC, NEW BRUNSWICK AND PRINCE EDWARD ISLAND FRUIT GROWERS' ASSOCIATIONS

H. BRONSON COWAN, Managing Director
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CIRCULATION STATEMENT.

Since the subscription price of The Canadian Horticulturist was reduced from $1.00 to 60 cents a year, the circulation has grown rapidly. The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with Dec., 1908. The figures given are exclusive of samples and spoiled copies, and of papers sent to advertisers. Some months, including the sample copies, from 10,000 to 12,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruit, flowers or vegetables.

January, 1908	7,650	January, 1909	9,456
February, 1908	7,824	February, 1909	9,310
March, 1908	8,056	March, 1909	9,405
April, 1908	8,250	April, 1909	9,482
May, 1908	8,573	May, 1909	9,172
June, 1908	8,840	June, 1909	8,891
July, 1908	9,015	July, 1909	8,447
August, 1908	9,070	August, 1909	8,579
September, 1908	9,121	September, 1909	8,605
October, 1908	9,215	October, 1909	8,675
November, 1908	9,323		
December, 1908	9,400		
Total for the year	104,337		

Average each issue in 1907, 6,627
Average each issue in 1908, 8,695
(Increased circulation in one year 2,068)

Sworn detailed statements will be mailed upon application.

Our Protective Policy

We want the readers of The Canadian Horticulturist to feel that they can deal with our advertisers with our assurance of the advertisers' reliability. We try to admit to our columns only the most reliable advertisers. Should any subscriber, therefore, have good cause to be dissatisfied with the treatment he receives from any of our advertisers, we will look into the matter and investigate the circumstances fully. Should we find reason, even in the slightest degree, we will discontinue immediately the publication of their advertisements in The Horticulturist. Should the circumstances warrant, we will expose them through the columns of the paper. Thus, we will not only protect our readers, but our reputable advertisers as well. All that is necessary to entitle you to the benefits of this Protective Policy is that you include in all your letters to advertisers the words, "I saw your ad. in The Canadian Horticulturist." Complaints should be made to us as soon as possible after reason for dissatisfaction has been found.

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PETERBORO, ONTARIO.

EDITORIAL

BRITISH COLUMBIA INSPECTION

The horticulturists of British Columbia are indignant at the manner in which they are being treated by the provincial government in respect to the fumigation and inspection of nursery stock. The florists of Vancouver recently expressed their indignation in vigorous terms. They claim that nursery stock is wantonly destroyed by the provincial inspection officers, and that they are finding it difficult to get wholesale nurseries to ship stock to them. Stock from the United States is fumigated three times before it reaches the purchasers. Fumigation in itself is not objected to but it is not necessary to repeat the process even once, much less twice. The delay occasioned by this nonsense also is detrimental to trade and helps to damage the stock. The combination of circumstances is more than the stock can stand and a large part of it dies.

The horticulturists have a serious grievance. "The regulations are grossly oppressive and should be altered," said Judge Jay, at Victoria, when dismissing a case brought by the provincial government against the Fairview-Esquimalt Nursery. In the course of the hearing of this action it appeared that a $500 shipment of palms had been destroyed in January, in May $63 worth of geraniums were not returned for thirteen days and when they did get back were all rotted and a shipment of palms from Philadelphia met a similar fate. Mr. A. W. Bridgman, of the Fairview-Esquimalt Nursery, said that his company had lost hundreds of dollars owing to the negligence of the inspectors at Vancouver. These are a few of the many instances that could be cited. As the industry is a large one and as the demand for nursery stock constantly in increasing, the British Columbia government should remedy the situation at once.

ANOTHER FAKE

Almost every year some new fake in the horticultural line, makes its appearance in Canada. The variety and ingenuity of these frauds is astonishing. Even more astonishing, however, is the number of farmers and fruit growers who are bitten by them.

We have had powders, which, by being injected into a tree, would be carried by the sap through all the branches and result in phenomenal yields. Paints, that would protect trees against all insect life and insure large crops, have had their day. Seedless apple trees that were going to revolutionize the fruit growing industry have appeared and disappeared. Now we hear of a Northern Spy apple tree grown by a new budding process, that will insure trees coming into bearing inside of three years' time. Agents who are booming this new discovery (?) we learn, are operating in such counties as Simcoe, Grey, and Dufferin, in Ontario and possibly elsewhere.

THE CANADIAN HORTICULTURIST (October 1908; page 222) warned farmers and fruit growers against a similar fraud. Agents of a Michigan firm were telling their prey that their firm practised a system of grafting that ensured superior stock in every respect. Probably it is the same bunch of rascals that is now operating in the counties mentioned, but substituting a budding fraud for a grafting one. No system of grafting or budding can make Spy trees bear in three years. Even top-grafting, with which the methods talked of by these fakirs should not be confounded, cannot make Spy trees bear so early. It is well known that Spy top-worked on Tolman Sweet, Pewaukee, Haas, Wallbridge, McMahon's White and other hardy varieties of early maturity and better root systems will come into bearing sooner than when propagated in the ordinary way—from seven to nine years compared with twelve to fifteen years. Reliable Canadian nursery concerns offer trees top-worked on these varieties. The United States people, above mentioned, are humbugs.

These fakirs are offering also "black knot proof" cherry and plum trees. No variety of these is absolutely proof against this disease. Waugh says in "Plums and Plum Culture": "It occurs on all sorts of plums (contrary to the statements of the tree peddler.)" Certain vigorous growing varieties are less liable to be affected than others, but none are immune. To claim that plum and cherry stock, grown anywhere or by any process, is "black knot proof," is false.

The agents who represent these concerns are smooth talkers. They know that their frauds will not be discovered by their victims before several years, which enables them to get a portion at least of the money they are after and get safely out of the country before their victims discover that they have been defrauded. Such fakirs operate only once in the same locality. They will appear in some other district next year. Their customers have practically no means of redress as no action can be taken through Canadian courts without great trouble and expense. Farmers and fruit growers, take heed!

AMATEUR HORTICULTURE

In these columns last month, reference was made to the apparent tendency of the Ontario Horticultural Association to confine its work and influence to flowers, lawns and other ornamental factors in gardening. It was suggested that fruits and vegetables be given more attention than they are. We have received letters approving our contention.

Persons who grow fruit in an amateur way and for their own use, have no organization to look to for instruction and advice other than the Ontario Horticultural Association. The work and efforts of the Ontario Fruit Growers' Association are chiefly commercial and rightly so. It would be of great benefit to our country as a whole if the Ontario Horticultural Association and the local horticultural societies would take up the questions of fruit and vegetable culture in order to encourage and assist their members in the growing of more and better fruit and vegetables at home.

PUSH FOR INCREASED GRANT

It is absolutely essential for each horticultural society of the province to be represented at the approaching convention of the Ontario Horticultural Association, not only for the general benefit that they will derive from the addresses and discussions but also in order that steps may be taken to have the government grant increased. Unless an increased grant is secured at once, most of the societies will be hindered in their work and the result will be disastrous.

The government must be impressed with the fact that the societies are doing a work

greatly in advance of the assistance that they are given. Let every society send a delegate to Toronto for this purpose. The grant should be increased by at least $5,000.

ORGANIZE A SOCIETY

All cities, towns and villages in Ontario where horticultural societies have not been organized should take up the work at once. It is indisputable that those places wherein active horticultural societies are at work, are the most beautiful, the cleanest and the most attractive in the province. Every municipality should have a horticultural society.

Under the Horticultural Societies' Act, these organizations must be formed before the second week in January to participate in the government grant. Further information will be given on this and other points on application to Mr. J. Lockie Wilson, Superintendent of Horticultural Societies, Parliament Buildings, Toronto. Towns and cities that would like to take up the work should send a delegate to the convention of the Ontario Horticultural Asssociation this month in Toronto. Any person that is interested may attend.

WHAT IS A CRAB APPLE?

What is the difference between an apple and a crab apple? Can any of the readers of THE CANADIAN HORTICULTURIST give a definition for one or both of these types? Bailey's "Cyclopedia of American Horticulture" says: "The term 'crab apple' is an indefinite application."

During the past month, specimens of small apples or crab apples were received from various sources by THE CANADIAN HORTICULTURIST for identification. With some of them it was difficult to tell whether they were crab apples or apples. Some of them had more apple characteristics than crab characteristics and vice versa. Crabs and apples have been so intercrossed in recent years that it is difficult to say which is a crab and which is an apple. What constitutes a crab apple and what is an apple? We would like to know of any modern definition which separates these.

The proposal of the Dominion Department of Agriculture to establish an experimental fruit station in British Columbia is a good one as far as it goes, but the varied fruit interests of the province and the diversity of the climate there warrants the establishment of more than one station. At least four fruit stations are needed in British Columbia besides the experimental farm at Agassiz. It cannot be hoped, however, that the Dominion government will establish more than one and that probably will be a large one situated where it will do the most general good. This could be supplemented by smaller stations established and controlled by the provincial government within whose sphere this work more properly falls.

In the interests of the development of Canada's export trade, a notice is published on page 254 of this issue asking for the names of exporters from the Atlantic to the Pacific with a detailed list of the goods that they are in a position to sell abroad. This information is wanted by the Department of Trade and Commerce, Ottawa. It is hoped that it can be made the basis of a permanent list which will be immediately available at all times in the advancement of the foreign trade and commerce of the Dominion. When this information is obtained, Canadian Trade Commissioners in the various parts of the world will be notified immediately and the same information will be systematically indexed in their respective offices. Our fruit growers and dealers who have trade relations with other countries and who wish to increase same should fill out the blank form that is published with the notice on another page and send same at once to the address there given.

In a recent issue of *"Better Fruit"* appears an illustration of a cold storage plant which that paper claims is the *only* cold storage owned by an association. If the editor of that publication would visit the great fruit districts of Canada he would find that that statement is not correct. Our largest and best equipped cold storage plant owned by fruit growers is at St. Catharines, Ont.—the plant of the St. Catharines Cold Storage and Forwarding Company.

PUBLISHERS' DESK

Gratifying evidence of the standing of THE CANADIAN HORTICULTURIST with its leading advertisers has been furnished within the past few months. Seven firms have signed the largest advertising contracts in the history of THE CANADIAN HORTICULTURIST. The firms in question are Canada's four large nursery firms, Brown Bros., Nurserymen, Limited, Brown's Nurseries, Ont.; E. D. Smith, of Winona, Ont.; Stone & Wellington, of Toronto; and the Canadian Nursery Company of Montreal. Brown Bros., Nurserymen, Limited and E. D. Smith have taken a half page space in every issue of THE CANADIAN HORTICULTURIST for the next three years at an advance in rate. Stone & Wellington, and The Canadian Nursery Company, have signed contracts for a quarter page space in every issue for three years, also at an advance on the regular rate. The Oakville Basket Company, Batts Limited, and the King Construction Company of Toronto, all of whom have been regular advertisers in THE CANADIAN HORTICULTURIST have each signed contracts for a quarter page space in each issue for the next three years. The increase in the demand for preferred positions in our advertising columns affords a striking evidence of the improved standing of the paper. THE CANADIAN HORTICULTURIST has been growing so rapidly in influence and prestige, that advertisers are finding it necessary, in order to secure good positions, to sign long term contracts.

We were much pleased with the many complimentary remarks about THE CANADIAN HORTICULTURIST made by our friends and new acquaintances at the various exhibitions held in Canada this fall and at the meetings of the American Pomological Society in St. Catharines. It has been our purpose to make the publication worthy of favor and even of compliment. To know that our efforts have been successful is gratifying. Our aim continually will be to make THE CANADIAN HORTICULTURIST the best paper of its kind on the continent. Suggestions and criticisms are invited.

Our cover illustration this month shows a plate of Yellow Transparent apples grown in British Columbia.

Send photographs of lawns, hedges, ornamental trees and shrubs, flowers and other horticultural subjects.

Ontario Horticultural Exhibition

The prize list for the sixth annual Ontario Horticultural Exhibition to be held in Toronto Nov. 9-13, offers exceptional inducements to exhibitors. Large prizes are offered for fresh and preserved fruits. A new feature is the offering of 1st prizes of $10, and 2nd prizes of $5 for the best single specimen apples of the following varieties: Baldwin, Greening, King, McIntosh and Spy. The county councils of Brant Halton, Huron, York and of the united counties of Leeds and Grenville, have granted a sum of money to be given as prizes for the best plates of apples grown within their respective counties.

Special sections in the prize list are set apart for exhibits from the counties of Wellington, Waterloo, Dufferin, Simcoe and all other portions of the Province north of a line from Orillia to Kingston. There are prizes for everywhere and for everything in the fruit line. Prizes are offered also for the best box or barrel brand of an association or individual. The vegetable and flower departments are equally favored in the way of general and special prizes. Exhibits from manufacturers of all kinds of horticultural supplies will add to the educational features of the show.

National Apple Show

Word has been received by the secretary of the National Apple Show to be held at Spokane, Wash., Nov. 15 to 20, that Kelowna, Nelson, Vernon and Vancouver will send exhibits for a dozen classes. Other districts, also, have announced their intention of making displays.

Canadian growers may compete in all classes except in the special state group displays. $25,000 in prizes and premiums will be distributed by Prof. H. E. Van Deman and the associato judges in 20 classes ranging from a full car, 630 boxes or 210 barrels, to a single plate of five apples. The chief prize and sweepstake is $1,500 in the car-load class. Canada should win this and a large proportion of the other handsome premiums. The secretary is Mr. Ren. H. Rice, Spokane.

Colorado Apple Show

Apple growers in Canada should take a deep interest in the Colorado National Apple Exposition, Denver, Jan. 3 to 8, 1910. Among the prizes that they would have an especially good chance to win would be the Long Distance prize which is $50 for the barrel or box that comes the greatest distance to the show and the Foreign Country special of $100 first prize and $50 second prize for the best barrel or three boxes from a foreign country.

The other prizes run from $25 for the largest single apple to $1,000 for the best carload. The plate and box prizes are all attractive and any grower desiring full information can secure it by writing to Clinton Lawrence Oliver, secretary, P.O. Box 1504, Denver, Colo. The entire prize list aggregates nearly $30,000 and the object of the exposition is to stimulate the apple industry of the American continent.

The horticulture of Saskatchewan is as yet but slightly developed. Many people think that this is a country where nothing but wheat can be grown successfully. This is a great mistake. No country is better suited to the growth of common vegetables, while small hardy fruits can be grown to perfection. However, to attain success in some lines of horticulture, special methods must be used in growing—Brenda E. Neville, Cottonwood, Sask.

The Nova Scotia Horticultural Exhibition

Eunice Watts, Waterville

IN opening the seventh annual Nova Scotia Horticultural Exhibition, held at Middleton, on October 6, 7 and 8. Professor Cumming of the Agricultural College, Truro, said that the exhibition was a credit to any part of Nova Scotia or the Dominion of Canada. During the last century exhibitions have taken a prominent place in the advancement of agriculture and Nova Scotia has been keeping well in line with the other provinces. During this season we have had one provincial, and from Yarmouth to Antigonish there have been no less than 10 local fairs at which thousands of visitors have shown a profound interest. The local show at Pictou at which 4,000 people attended was considered better than that of Halifax, but in the Annapolis Valley the fruit is far away better than in any part of Nova Scotia.

Exhibitions should be encouraged in order to give the people an idea of the possibilities of our own country, and to give the average farmer a chance to compete with his neighbor. A journey through the valley, with glimpses of orchards and waggons piled with barrels does not give any idea of the soil's possibilities as does an exhibition, and no man can be truly patriotic unless he knows what his country can do. We have not enough optimism here in the east. It is not because we have not the crops and resources, but because we have not the spirit of optimism. Western people differ; no matter what their crop is, they are always ready to say: "This is the greatest country."

Referring to the exhibitors, the professor said that the man who got no prize ought to get most out of the exhibition, for his failure should give him renewed zeal to outdo his neighbor, and thus produce better stuff.

At the exhibitions we learn that the best pays the best. It is here that the public is educated as to quality. We know what the results would be if the man who opens a barrel of apples in London felt that quality lies under the words "Nova Scotia," but unfortunately dishonest men are causing honest packers to suffer in the Old Country.

That we can produce fruit as fine as any in the world has been proved by the awards which were given to Nova Scotia exhibits by the Royal Horticultural Society, and yet Nova Scotia is a place almost unheard of by the average Englishman. The professor then turned to Mr. Arthur Barnstead of the Immigration Department, who was on the platform and said that through him many prominent and wealthy people of England were now turning their faces towards Nova Scotia, where there is an unlimited outlet to markets. The time is near, when Nova Scotia shall come to her own. Already the spirit of progress permeates the province and fewer people are going west. The quality of people entering the country is better, and next spring there are coming from England men with capital (one with as much as $250.000) who will develop industries from resources unequalled in any other part of the Dominion of Canada. After this speech, the professor declared the exhibition formally opened.

THE EXHIBITS

The children's exhibits of manual training, needlework, domestic science and penmanship were excellent, but their collections of dried flowers were poor and unscientific. The prizes offered by Professor Smith for collections of injurious insects should have been more appreciated, but there were only two entries and the specimens were in spirits.

The collections of ornamental plants were a credit to any community and although there were several entries for cut flowers, it was hardly fair to expect them to do themselves justice at such a late date. The sunflower heads were large and numerous. The vegetable display was good.

THE FRUIT DISPLAY

The most prominent feature of the exhibition was the apple display, which would be hard to equal anywhere. There were about 50 varieties of apples, the chief kinds grown in the valley and the entries for almost every kind were numerous in boxes, barrels or plates. One disappointing feature in this building was that the names of the prize winners were not on their cards after the judging.

The pears, plums, peaches, quinces and grapes were excellent, but the cranberry exhibit was small. There was one dish of Alpine strawberries grown from seed in a window.

In the fruit building a demonstration of packing apples in boxes was given, which was much appreciated as the box trade is yet in its fancy in Nova Scotia.

Other exhibits, not for competition, comprised clay drain pipe and bricks by the Middleton Brick Company. Spray pumps made by a Nova Scotian, Mr. R. B. Westhaver of Mahone Bay, gasoline engines by the Lloyd Company of Kentville and a beautiful scenic photograph by Mr. Paul Yates of Middleton.

Railway Rates to Toronto

Delegates attending the conventions in Toronto this month will be able to do so for first-class single fare, but it will be necessary for them to obtain Standard Certificates from the station agent from whom they purchase their tickets.

One-way tickets to Toronto, with Standard Convention Certificates, can be purchased from Nov. 5 to Nov. 17, inclusive, and will be honored for the return journey free, regardless of the number in attendance, up to and including Nov. 17, 1909. These Certificates must be endorsed by the secretary of the Ontario Horticultural Exhibition before they will be honored by the railways for the return trip. A fee of 25 cents will be charged for each Certificate issued. The conventions and the Ontario Horticultural Exhibition should not be missed.

Fruit Growers' Programme

An interesting programme has been arranged for the convention of the Ontario Fruit Growers' Association to be held in Toronto, Nov. 10 and 11. Some of the subjects that will be dealt with are as follows:

SMALL FRUITS

"Small Fruit Culture in Ontario During the Past 50 Years," A. W. Peart, Freeman.

"Overplanting of Strawberries and the Western Markets," Robert Thompson, St. Catharines.

"Small Fruits in the Young Apple Orchards," J. E. Johnson, Simcoe.

CHERRIES AND GRAPES

"Sweet Cherries for Southwestern Ontario," F. J. Stewart, Homer.

"Cherries for the Commercial Orchards of Ontario," A. E. Sherrington, Walkerton.

"Is Grape Growing Profitable at Present Prices?" Murray Pettit, Winona.

"New York Grape Growing Methods," D. K. Falvay, Westfield, N.Y.

PEACHES

"Commercial Peach Orcharding in Southwestern Ontario," J. L. Hilborn, Leamington.

"50 Years of Peach Culture in Ontario," A. M. Smith, Port Dalhousie.

"Pruning of the Peach," J. W. Smith, Winona, and Wm. Armstrong, Queenston.

"Peach Crops and Prices," W. H. Bunting, St. Catharines.

"Peach Culture in Michigan," C. Bassett, Fennville, Michigan.

PEARS

"Results of 50 Years Experience in Growing Pears," E. C. Beman, Newcastle.

"Profits in Pear Orchards," W. F. W. Fisher, Burlington.

APPLES

"Lime Sulphur Vs., Bordeaux for Summer Spraying of Apples," L. Caesar, O.A.C., Guelph.

"The Apple Orchards of the Lake Huron Shore," S. E. Todd; O.A.C., Guelph.

"Spraying 10 acres of Apples—Cost and Equipment," Max Smith, Burlington.

"Marketing of Apples," R. J. Graham, Belleville.

"Low Cost Cold Storage Plants for Co-operative Associations," J. A. Ruddick, Ottawa.

"Expert Apple Trade," by dealers, (English).

"Getting Together," C. Bassett, Michigan.

"Apple Growing on the Pacific Slope," (illustrated by lantern slides) Prof. John Craig, Ithaca, N.Y.

Horticulturists' Programme

Among the subjects that will be dealt with at the Convention of the Ontario Horticultural Association to be held in Toronto, Nov. 9 and 10, are:

"Physical Disintegration of the Tissues or Natural Death of Plants," H. H. Groff, Simcoe.

"Improvements of Parks," J. P. Jaffray, Galt.

"Perennial Borders," E. Byfield, Balmy Beach.

"Arrangement of a Flower Garden," Miss M. E. Blackstock, Toronto.

"School Gardens," (lanter slides), Miss Louise Klein Miller, Cleveland, Ohio.

"Work of Horticultural Societies Justifies an Increased Grant," W. B. Burgoyne St. Catharines and Rev. A. H. Scott, Perth.

"Furthering the Work of the Smalle Horticultural Societies," James Mitchell, Goderich.

"Making the Work of Horticultural Societies more Effective," Prof. H. L. Hutt, Guelph.

"Public Playgrounds," James Wilson, Park Commissioner, Toronto.

Address will be given by Hon. J. S. Duff, Minister of Agriculture, C. C. James, Deputy Minister, Prof. John Craig, Cornell Univerity, and others.

Vegetable Growers' Programme

The programme for the convention of the Ontario Vegetable Growers' Association, Toronto, Nov. 11, will include the following papers and addresses:

"Report of Investigation on Cabbage and Cauliflower Growing in the United States," A. McMeans, O.A.C., Guelph.

"Report on Vegetable Growing at Jordan Experimental Station," H. S. Peart, Jordan.

Address, G. H. Clark, Seed Commissioner, Ottawa.

Reports of Inspection of Experimental Plots conducted by O. V. G. A.

"The best Method of Increasing Membership and Furthering Interests of the Association," C. W. Baker, Byron.

Address, Hon. J. S. Duff, Minister of Agriculture.

Potato Culture," Prof. Macoun, C.E.F., Ottawa.

"Small Fruits in Connection with Vegetable Growing," W. C. McCalla, St. Catharines.

"Insects that affect Market Gardens," C. W. Nash, Toronto.

Horticulture in Barrie

W. Taylor, Barrie, Ont.

Barrie has the best kept lawns and the greatest number of flower beds of any town its size in Ontario. Since the Barrie Horticultural and Town Improvement Society was organized, the change has been so noticeable that the membership has increased by leaps and bounds. Three years ago, it started with a membership of 63. It now has a membership of 200. The interest in it has been of great value to the town in a horticultural sense as seen in the great interest which the members of the society and the people in general have taken in improving and beautifying the town, both in the lawns and boulevards.

We have been very fortunate this year in having such an enthusiastic president as Mr. George Vickers, one of our principal merchants and an ardent lover of flowers, who with the energetic secretary, Mr. J. A. McLaren, have so opened the public mind that our parks have been made a pleasant place to go to. A further grant of $50 was given to the society and if the same council holds another year, we have a further chance of a grant of $200.

The society has had two flower shows this year, one for the school children, Sept. 7, and one for the members of the society, two weeks later. The school children had over 700 entries and the members of the society had over 600 entries. The society is well pleased with its efforts in the cause for which it was formed.

Tillsonburg Horticultural Show

The Tillsonburg Society held its annual exhibit of plants, flowers and fruit on September 2. The exhibit is quite a social event in the town and is well patronized by the townspeople. The school children's exhibit was a feature of the show. To the energetic secretary, Mr. W. W. Livingstone and Mr. Fairs, his assistant, belong chief credit for such a successful show. Mr. Wm. Hunt of the Ontario Agricultural College, Guelph, judged the exhibit and expressed great pleasure at the general excellence of the exhibit, more especially at the display of cut flowers shown by the young people.

In adition to the floral exhibit the Tillsonburg orchestra gave a splendid programme of promenade music, the rink being especially adapted for a concert of this nature. A bevy of young ladies very kindly dispensed ice cream to visitors, a feature that added to the enjoyment of the evening as well as proving a source of revenue to the society. This latter is a feature that many of our societies might do well to copy at their annual shows, as it is a great adjunct to the show, and helps to promote a sociable, fraternal feeling among the members and visitors. The executive of the society and the townspeople generally are to be congratulated upon such a successful show.

At a meeting of the Brantford Horticultural Society held last month, a deputation, consisting of Messrs. E. W. P. Jones, R. N. Elliott, R. Walter Brooks and J. Thresher, was appointed to wait upon Mr. W. S. Brewster, M.L.A., the local member and to impress upon him the necessity of increasing the annual grant to horticultural societies. The annual meeting of the Brantford Horticultural Society will be held on November 4. Mr. R. Walter Brooks is secretary.

The secretaries of horticultural societies are requested to send for publication in THE CANADIAN HORTICULTURIST copies of papers read at their meetings.

The St. Catharines Horticultural Society will hold a bulb competition next spring, open to all members, except the officers and directors and members that employ help in their gardens. Public property also is barred. Six prizes are offered.

At the Niagara District Horticultural Exhibition in future a competition will be held in cut bloom, open to all the horticultural societies of the province. The St. Catharines Horticultural Society, in which city the exhibition is held, is barred so that all societies may feel that they are on an equal footing. The 1st prize will be a valuable cup or other trophy to cost about $25.00.

Last spring, Mr. H. H. Groff of Simcoe Ont., sent some of his Canadian gladioli to the Royal Botanical Gardens, Kew, England. How well they stood the test there is shown by the following extract from a very appreciative letter received by Mr. Groff recently from W. Watson, curator at Kew: "Your gladioli have been very much admired. The yellows and blues are exceptionally good and the named varieties, Blue Jay, Dawn, La Luna and Peace are superb."

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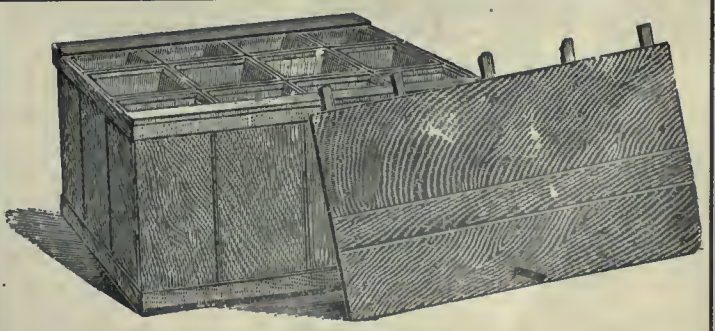

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NOTES FROM THE PROVINCES

Victoria Exhibition

F. Palmer

The horticultural display at the Victoria Agricultural Exhibition this year was not as large as it has been in the past two or three years. The fruit, however, was of much better quality and exceptionally clean, showing that the growers are beginning to pay more attention to intelligent spraying, pruning, cutivating, etc.

The chief feature of the fruit exhibit was the restriction in the number of varieties to be shown in the commercial exhibits. This, it is presumed, is to encourage the growers to go in for fewer varieties and to grow more of those varieties. The plate exhibits on the other hand, have had a tendency to create a desire to grow too many varieties to be of commercial use. Every year sees more classes of commercial exhibits and fewer plate fruit, as the agricultural association is awarding a large list of valuable prizes to promote interest in commercial lines.

The weak point in the exhibits is the lack of color, noticed more especially in the winter varieties of apples. This lack of color is undoubtedly due to the unusually late and cool summer.

Errington and Cantwell, of Saanich, won the banner prize of the season, a silver cup and $20 for the best commercial display of fruit. This cup was won in 1907 by R. M. Palmer & Son, Rockside Orchard, and in 1908 by Thos A. Brydon.

The floral exhibits were excellent. Though the exhibit was not as large as that of last year, yet the quality of the flowers displayed was, if anything, superior. Sweet peas, were especially good, being clean and attractive, while many of the annuals showed up well.

The vegetable exhibit was also very good though it was also much smaller than usual and of much better quality. Two notable exhibits in the vegetable line, were the collections shown by Sooke district, and Mr. Grant, of Royal Oak. These displays were excellent, in fact all the vegetable, flower and fruit exhibits spoke well for the province. The superior quality of all the exhibits goes to show that the farmers and fruit growers are becoming more educated, and are employing more up-to-date methods in their work.

Okanagan Valley, B. C.

At a meeting of the Vernon Board of Trade last month, a resolution was passed asking the Minister of Agriculture for British Columbia to appoint a representative from the Okanagan Valley to accompany the exhibit of fruit from that district to the Royal Horticultural Show in England.

On receipt of the resolution the Minister of Agriculture replied that he was unable to arrange for this, as the plans in this connection already had been perfected. This matter will still be kept in view and pressed upon the Government for recognition next year.

The Okanagan Fruit Union, as a result of a recent visit to the Coast by Messrs. Ricardo and Agur, have succeeded in securing the capital necessary to construct a series of frost proof packing houses in Vernon, Okanagan Landing and various points down the lake. Construction will be started almost immediately, says the *Vernon News* and the building in Vernon is to be a two-story structure with a basement, costing about $10,000. A cold storage warehouse will also be erected, either at Okanagan or in Vernon, and every facility will be afforded for the handling and storing of fruit. By the time the next season's operations commence the Union will be equipped in a manner that will enable them to do business on a scale never before attempted in this province, and the Okanagan will possess facilities for handling the fruit crop that cannot fail to be of great advantage to all concerned.

Prince Edward Island

J. A. Moore

The provincial exhibition was a grand success as far as attendance and live stock exhibits were concerned. As our season is late this year and the show somewhat early, fruit and vegetables were not as good as in some former years. The late varieties of apples lacked size and color, and it was evident that there were not nearly as many exhibitors of fruit as last year.

In early apples there were large entries of Yellow Transparent, Williams' Favorite, Red Astrachan and Duchess. We can grow these varieties to perfection. In autumn apples we grow most excellently. Wealthy, Alexandra, Wolf River and Gravenstein, although the last mentioned does better top-grafted than on its own stock.

For winter, we have several varieties that

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grow finely, as Baxter, Stark, Ontario, Pewaukee and Ben Davis, and some varieties locally originated do well to, viz.; Inkerman and Dodd. The Northern Spy, King and Baldwin were exhibited in generous numbers, but are not now considered profitable varieties to grow here.

If we were to decide on, say, seven varieties for profit we would choose Crimson Beauty, Duchess, Wealthy, Alexander, Baxter, Stark and Ben Davis. These are perfectly hardy, bear well, grow to perfection and would cover the whole season. Of course, there are new varieties being introduced and we are watching several, and would be pleased to add or substitute new fruits that are likely to make good.

One grievance our fruit growers had at the exhibition was that the Nova Scotia fruit which is about three weeks farther advanced is shown in competition with ours. This is not fair to our growers and we think there should be a separate class for Nova Scotia as they are sure to sweep the prizes, especially in all the late varieties of apples, at this season of the year. If the exhibit were three weeks later we think we could hold our own fairly well as our late apples would be matured.

The Co-operative Fruit Company packed apples in Charlottetown on certain days last month in order to give an opportunity for people who have apples to pack to have them packed in accordance with the Fruit Marks Act. The growers were asked to pick them carefully and bring them in without bruising.

Mr. A. M. McRae of Pownal has a most excellent crop of apples this year. The Wealthy, Gravenstein and Dodd seem to do best with him. A visit to his orchard would demonstrate the fact that fruit growing is very profitable on P.E.I. when rightly conducted.

Nova Scotia

G. H. Vroom

The provincial exhibition at Halifax was a good all round show. In fruit, there was one of the best displays ever seen at this annual fair. The 32 county collections, representing as they did 10 counties, made a display worth spending some time examining and must have convinced the careful observer that the Annapolis Valley is not the only section of Nova Scotia where fruit can be successfully grown. Fifteen 10 variety collections, and 20 5-variety collections were shown and competition was keen.

In individual plates the leading commercial varieties were on show in large numbers. Pears and plums were very much in evidence and made a fine appearance. Preserved fruit and pickles caused the judge some anxious moments.

The floral exhibit was exceptionally fine and consisted of beautiful palms, a gorgeous display of ferns, geraniums, lilies, begonias, fuchsias and many others. The display of cut blooms deserves special mention. Verbenas, dahlias and sweet peas predominated.

The exhibit from the Experimental Farm at Nappan reflected great credit upon Mr. R. Robertson, the superintendent. It was made up of grain, grasses, flax, corn, vegetables, fruit, honey and many other things and was very neatly arranged.

In the agricultural hall we found a well arranged exhibit of the products of the farm, roots, vegetables, grain and field seeds, cabbage and cauliflower, pumpkin and squash, but not in such large quantities as could be desired in what should be a first-class agricultural province.

Nova Scotia, Quebec and Ontario will not exhibit at Royal Horticultural Show, London, England, this year.

Annapolis Valley West, N. S.

R. J. Messenger

The last two or three weeks, beginning Oct. 1, have shown us almost a miracle. Sept 28 and 29 gave us a good rain, the first to amount to anything since June 1. Following this, we had two weeks of July weather. Almost every day the thermometer climbed up above 80 degrees and often reached 90 degrees at noon in the sun. The air during this time carried an amount of moisture in excess of ordinary conditions.

The result on the crops, especially winter apples, was wonderful. They have easily doubled in size during the period, and at this writing (Oct. 18) many are saying they never had better Baldwins, Spys, Nonpareils, Golden Russets, etc. Baldwins which two weeks ago promised a large proportion of No. 2 and under are larger than in average years. This condition added to the clean character of the fruit, will give us some splendid winter fruit to export.

What effect this sudden development in size will have on the keeping qualities of apples is a matter of conjecture. We would almost expect that the texture would be open and porous under such conditions for good keeping qualities. Coloring is also good. This seems to be a general good year for Kings and Golden Russets.

Prices have declined somewhat to give the speculators a chance to buy low. The Gravensteins that went across in the hot weather arrived in very bad condition and not only brought disappointing results but have had a seemingly demoralizing effect on the markets.

A 14 kt. Gold Fountain Pen free for only two new subscriptions to The Canadian Horticulturist.

Fall Spraying Gives Best Results

The Best Fall Spray is V1 Fluid

Writing under date of September 3rd, 1909, to WM. COOPER & NEPHEWS,

Mr. Maxwell Smith, Late Dominion Fruit Inspector for British Columbia says: "I can conscientiously recommend your Spray Material, and have personally demonstrated to my satisfaction the value of your Apterite."

Owing to the very large demand for **Cooper's Sprays** the manufacturers have pleasure in announcing that **V1** and **V2 Spray Fluids** have been **substantially reduced** in price.

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CANADA'S GREATEST HORTICULTURAL DISPLAY

THE SIXTH ANNUAL

Ontario Horticultural Exhibition

FRUIT

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HONEY

FLOWERS

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TABLES

ST. LAWRENCE ARENA, TORONTO, ONT.

November 9, 10, 11, 12, 13, 1909

Many New Features have been added to the Prize List

FIFTY DOLLARS FOR FIVE APPLES

$10 Each for Best and $5 Each for Second

BALDWIN, GREENING, McINTOSH, KING, SPY

THE 50TH ANNUAL MEETING OF THE ONTARIO FRUIT GROWERS' ASSOCIATION

SPECIAL EXCURSIONS FROM ALL POINTS IN ONTARIO

Ask your local railway agent for particulars.

President—W. H. BUNTING

Secretary—P. W. HODGETTS, Parliament Buildings, TORONTO, ONT.

Annapolis Valley East, N. S.

Eunice Watts

The cranberry crop this year is very poor. Growers who last year had 200 barrels have this season only 20, but last season they had a crop big enough to last them two years.

Fortunately there have been no gales so far, and the apples have not suffered. They are being picked and rushed to the warehouses as fast as possible. The fruit crop seems to be turning out better than was anticipated a month ago and prices are good: $2.50 are offered for orchards, tree run. The apple shipments from Berwick station during August were 415 barrels, in September 8,693 barrels.

Mr. Earl of Lytton, B.C., has been giving demonstrations in the art of packing apples in boxes at the different warehouses in the vicinity and at the Middleton exhibition. He visited Berwick, Kentville, Upper Dyke, Cambridge, Waterville and Aylesford. Mr. Anderson of the Department of Agriculture, also has been in our province in the interest of the new experimental orchard which is to be established here; so far nothing has been definitely decided.

In the market at Halifax were to be seen shelled broad beans at 12 cents a quart; also other varieties of beans and peas shelled and celery, varying from 8 to 13 cents a bunch. Radishes and all kinds of vegetables are arranged on the pavements by the negroes and Indians who come to town from the country for the Saturday market. The white people also have quite a market of dairy produce, moose meat, herbs and fruit.

A photograph was received by THE CANADIAN HORTICULTURIST recently (not distinct enough for publication) that showed Burbank plum scions grafted a few years ago on half of a Hyne's Surprise peach tree. This year, several ten-pound baskets of both plums and peaches were picked from this tree which is growing in the Hillcrest Orchards, Kentville, N.S. This interesting photograph was received from Mr. R. S. Eaton, the president and managing director of this orchard.

A new publication, *The Fruit Magazine*, made its first appearance last month. It is published in Vancouver, B.C. Mr. Maxwell Smith, who for nine years has been Dominion Fruit Inspector at Vancouver, assumes the editorship.

The following persons have recently been fined for violations of the Fruit Marks Act, on complaints laid by the Dominion fruit inspectors: R. O. Konkle, Beamsville, Ont.; Wm. Nash, Stoney Creek, Ont.; S. Overholt, Jordan, Ont.; Lougheed Bros., Clarksburg, Ont.; Geo. Dyce & Co., Meaford, Ont.; T. S. Vipond & Co., Montreal, Que., D. Hanniwell, St. Davids, Ont.

FOR SALE AND WANT ADVERTISEMENTS

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All must be true to name.

Persons having these or any other varieties of wrinkle Pea Seed to offer will please send samples and best prices to the:

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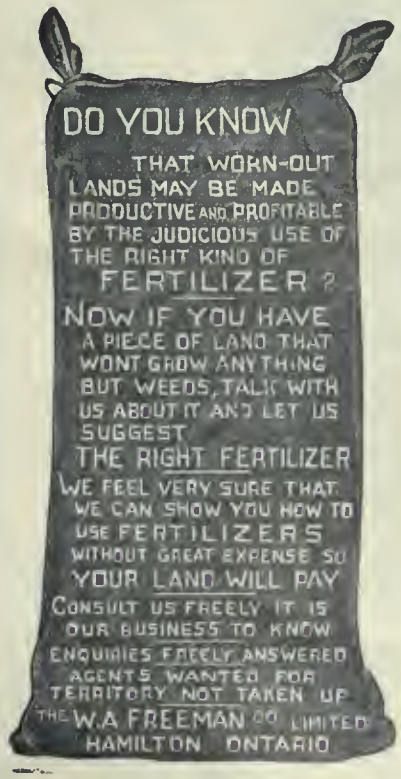
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ENQUIRIES FREELY ANSWERED
AGENTS WANTED FOR TERRITORY NOT TAKEN UP
THE W.A FREEMAN CO LIMITED
HAMILTON ONTARIO

The Grimsby District

Linus Woolverton, Grimsby, Ont.

The replies made on page 197 of THE CANADIAN HORTICULTURIST regarding this section are not in the least exaggerated. During the last few years I have visited many fruit districts in the United States and in England, and I always come back to the Niagara Peninsula with a feeling of contentment. If anything is lacking it is not so much in the conditions, as in the men who have not risen to their opportunities.

Here peaches grow to perfection and in such variety that a succession of shipments may be put on the market from July until October. The many varieties of English sweet and sour cherries are a great success here and many of them can not be grown elsewhere in Ontario. These sweet varieties when sprayed and harvested free of rot are quite as profitable as peaches. Grapes of all varieties of American origin give prodigious yields, and do not need laying down in winter. The quince gives rich harvests and the large Orange quince is often very remunerative. The finest varieties of pears fer export grow to perfection, such as Anjou, Duchess, Louise, Easter Beurre, Diel, Bosc, Bartlett, etc. Plums yield abundant crops, and that prince of blackberries, tender in many places, the Kittatinny, here gives magnificient crops of immense berries.

The prices being paid for land here are constantly advancing, as the advantages of location are being appreciated. The prices quoted in the article on page 197 are correct and even at these prices it has proved quite safe to buy on speculation. Recently 25 acres of peach orchard were sold for $25,000, and within two or three months two acres of the orchard were sold for $4,000. Unimproved land, however, is still available at reasonable prices.

Export Bureau

Editor, THE CANADIAN HORTICULTURIST: The Department of Trade and Commerce desires to announce its intention of compiling an index of Canadian manufacturers, exporters and producers generally, who desire to extend their trade abroad. For this purpose the attached form should be executed and fowarded to the department without delay. It would assist the department materially if the details under "Articles Manufactured or Produced" be entered in alphabetical order.

The list compiled by the department will be given the preference at all times when the names of such Canadian firms are required by intending purchasers abroad. As the information is received at the department it will be forwarded to all the Canadian Trade Commissioners in the various parts of the world, and be systematically indexed and be readily available in their respective offices.—F.C.T. O'Hara, Deputy Minister of Trade and Commerce, Ottawa.

.....1909

Export Bureau,
Department of Trade and Commerce,
Ottawa.

Name of firm .....

Street and No. .....

City or Town of .....

Province of .....

Detailed list of articles manufactured or produced:—

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OXO

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Right Up-to-Date. Get busy and send for our Price List. We ship direct from **Nurseries** to **Planters.** Thirty years and something new. May we have your order while the assortment is complete. Dependable stock at the **Central Nurseries.**

New Catalogue for January 1st, 1910

A. G. HULL & SON, ST. CATHARINES, ONT.

Growing English Gooseberries

An interesting address illustrated by specimen fruits in bottles was given at the conference of the American Pomological Society in St. Catharines last September, by Mr. R. B. Whyte, of Ottawa, on the subject "How to Grow English Gooseberries Free from Mildew." The speaker said that our native varieties, the Houghton being an example, are free from mildew and can be grown anywhere. The hybrids, such as Downing, Pearl and Red Jacket, also are free from mildew and are superior in size and quality to the natives; they are the commercial berries of America. The English varieties, such as the Whitesmith and Industry, have not been grown with much success in this country owing to their susceptibility to mildew and sun-scald. As they excell all other types in flavor and in size, they should be grown more extensively.

To grow them successfully they must be planted in clay loam soil, well fertilized and cultivated. To equalize the temperature which is necessary in the prevention of mildew, plant in partial shade of trees, but not directly under them. In very dry weather water must be applied or mulching resorted to. A pruning system must be adopted that will keep the bushes off the ground, so as to ensure a free circulation of air. Prune fairly closely; if too close, liable to mildow; if too open, liable to sunscald. Prune in September. Among the varieties of English gooseberries, recommended by Mr. Whyte are the following: Red-Sportsman, Slaughterman, London Red, Victoria, Crosby; white-Whitesmith, Triumph, Keepsake; yellow-Weatherall, Alma; green-Lofty, Green Ocean and Conn.

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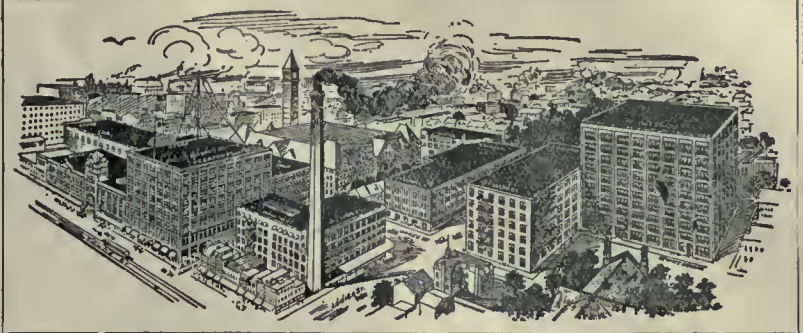

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THE APPLE SITUATION

Fruit is being gathered rapidly. Many operators are finding difficulty in securing enough of help to handle the crop. In many sections on account of wet weather and lack of sunshine, fruit has colored slowly. Except in a few districts, apples can be said to be somewhat undersized, but larger than in 1907. They are fairly free from fungus, but the work of the codling moth is showing up very much especially in unsprayed orchards.

One would call the weather conditions favorable for packing and shipping, much more so than last season, yet a great many cargoes are reported as arriving in bad condition in the Old Country. Returns have been quite disappointing. From the northwest, there are but few complaints. Dealers are buying heavily and up to date more fruit has gone west than ever before. There are but few shipments on consignment, the great bulk of the fruit being purchased f.o.b. cars at this end for which good prices have been paid. In a letter to THE CANADIAN HORTICULTURIST, Mr. P. J. Carey, Dominion Fruit Inspector, says: "The Old Country dealers have bought outright at this end more apples than ever before and it would seem that before many years the great bulk of Ontario apples will be sold and paid for at shipping points. It is yet too early to give an estimate of quantity of fruit going into store for repacking but storehouses promise to be fairly well filled."

KINGS CO., P.E.I.

Aitken's Ferry.—Apple crop fair; fall varieties selling locally at $1.50 to $2.00.—D.J.S.

DIGBY CO., N.S.

Bear River.—Crop average in quantity, excellent in quality. Kings, Blenheims, Ribstons and Gravensteins sold at $2.50 for No. 1 and No. 2.—W.G.C.

ANNAPOLIS CO., N.S.

Round Hill.—Gravensteins selling at $2 to $2.50; Ribstons, Kings and Blenheims, $2.50 to $2.75. Most winter varieties probably will be stored.—J.H.T.

KINGS CO., N.S.

Wolfville.—Total crop from Nova Scotia for export will not much exceed 500,000 barrels. About one-third of whole crop will be No. 2. Speculators have been offering $2.00, tree run, and $3.00, inspected. Growers are holding for higher prices.—J.W.B.

QUEENS CO., N.B.

Lower Gagetown.—Crop below average, but of good quality. Alexanders bring $1.50 to $2.00 and winter varieties are held at $3 to $4.—G. MacA.

Upper Sheffield.—Crop light, prices good, not many will be stored.—I. W.S.

WESTMORELAND CO., N.S.

Shediac.—Medium to light crop; none stored except Ben Davis.—H.B.S.

YORK CO., ONT.

Scotch Lake.—Prices on Fredericton market are, Alexanders, $1.40; North Star (Dudley), $2; Fameuse, $2.50; McIntosh, $3; Wealthy, $1.25 to $1.50.—W.H.M.

CHARLOTTE CO., N.B.

St. Stephen.—As the local market consumes our fruit, growers generally hold until winter.—G.N.B.

CARLETON CO., N.B.

Woodstock.—Crop better than expected; Fameuse $2 to $2.50; Alexander, $1.50.—H.E.N.

CHATEAUGUAY CO., QUE.

Chateauguay Basin. — Quality, good; quantity, light; Fameuse bring $4 f.o.b on wharf.—P.R.

TWO MOUNTAINS CO., QUE.

La Trappe.—Crop fairly good; some Fameuse and McIntosh have sold at $4 to $5.—G.R.

JACQUES CARTIER CO., ONT.

Notre Dame de Grace.—No. 1 Fameuse $3.50 to $4.50; No. 2, $2.25 to $2.75: McIntosh, higher.—R.B.

HASTINGS CO., ONT.

Belleville—Crop light. Many sold at $1.50, tree run, grower to pick and buyer to furnish barrels. Others sold at $1.50 to $2 for No. 1 and No. 2 packed the buyer picking, packing and furnishing barrels.—F.S.W.

DURHAM CO., ONT.

Newcastle.—Local association was offered $2.75 but had previously promised their output. Crop better than expected.—W.H.G.

HALTON CO., ONT.

Oakville.—Apples undersized and wormy and about half crop. Highest price $1.90 in the orchard.—W.H.M.

WENTWORTH CO., ONT.

Stoney Creek.—Crop runs from poor to good. We are picking 300 barrels an acre of fine Spys. Winds have brought down much of late crop.—J.T.

SIMCOE CO., ONT.

Orillia.—Late varieties sold for $1.25 in orchard, grower to pick; good crop.—W.B.

BRANT CO., ONT.

Burford.—Unsprayed fruit brought as high as $1.50 picked. Our association sold at $3 for No. 1 and $2.50 for No. 2 f.o.b. —F.M.L.

OXFORD CO., ONT.

Ingersoll.—Crop fair, small in size. Buyers have paid $1.00 to $1.25 on trees and $1.25 to $1.50 picked. Spys are mostly No 2.—J.C.H.

MIDDLESEX CO., ONT.

Vanneck.—Crop good. Our association sold at $2.50 for No. 1 and $2. No. 2 f.o.b. here. Buyers are paying $1 to $1.25 picked and hauled.—E.T.C.

KENT CO., ONT.

Chatham.—Crop light; some sold at $1 to $1.10 on trees.—W.D.A.R.

BRUCE CO., ONT.

Walkerton.—Crop better than expected, but undersized; prices, $1 on trees and $1.25 picked.—A.E.S.

GREY CO., ONT.

Owen Sound.—Have been offered $3.15

What you want is an Edison Phonograph

DO not be misled. The only kind of sound-reproducing machine that is perfect is the one that Edison invented and the one that Edison makes.

It is the one with the smooth and perfect sapphire point, that doesn't require changing with each record and that doesn't scratch—two points alone that should influence your decision.

Only in the Edison do you find the music-reproducing idea at its best.

Don't take our word for it. Compare the Edison Phonograph with all other instruments side by side, on the same music, if possible, and then you will know better than we can tell you.

Edison Phonographs are sold everywhere in Canada at the same price, $16.50 to $162.50.
Standard Records, 40c. Amberol Records (twice as long), 65c. Grand Opera Records, 85c.
There are Edison dealers everywhere. Go to the nearest and hear the Edison Phonograph play both Edison Standard and Amberol Records. Get complete catalogs from your dealer or from us.

NATIONAL PHONOGRAPH COMPANY
100 Lakeside Ave., Orange, N. J., U. S. A.

f.o.b. for No. 1 Spys but have sold the most of our pack at $2.25 to $2.75 for No. 1 and No. 2. We expect to pack nearly 12,000 barrels mostly for the west.—A.B.

YALE-CARIBOO CO., B.C.

Kelowna.—Crop light but good sized and clean. Good percentage should pack Fancy: 2 to 2 1-2 cents a pound for No. 1 fruit, picked and delivered to packing house, is general. Few will be stored.—P.

Vernon.—About 60 per cent. of a full crop with quality good. Prices are good. Not many will be stored.—T.G.W.

NANAIMO CO., B.C.

South Salt Spring.—Prices are expecte to rise as late apples are a short crop.—W.J.L.H.

Cooper's Spray Fluids.—The attention of our readers is directed to the advertisement on another page of this issue, of Messrs. Wm. Cooper & Nephews, the Spray Fluid Manufacturers. The fruit grower who sprays in the fall reaps the greater reward of his foresight the following summer. He should try the winter spray Fluid V1 manufactured by Wm. Cooper & Nephews. It is particularly gratifying to notice that this reliable and long established British firm have been able to secure a favorable expression of opinion from so eminent a fruit expert as Mr. Maxwell Smith of British Columbia. The manufacturers have substantially reduced the price of these articles so that now there is no reason that our largest or smaller growers cannot use these excellent remedies. Readers of THE CANADIAN HORTICULTURIST should acquaint themselves with the latest information and prices regarding V1 and V2 Sprays.

Twelve specimens of Boy's Delight apples were received recently by THE CANADIAN HORTICULTURIST from Mr. E. D. Smith, Winona, Ont. This variety is being introduced by the Helderleigh Nurseries. It is a seedling of Fameuse (Snow) and was found in the garden of Mr. S. P. Morse, Lowville, Ont. The original tree is now very old but still yields heavy crops. The fruit is not as susceptible to scab as its parent, the Fameuse. Being excellent in flavor, highly colored and of medium size, Boy's Delight is a desert apple that should be planted more extensively. Its season is October to mid-winter.

A meeting of the Ontario Ginseng Growers' Association was held in Toronto on Sept. 8. Interesting questions that bear on marketing ginseng and on its cultivation were discussed. THE CANADIAN HORTICULTURIST was appointed the official organ of the Association.

A British Invasion.— A British firm, whose head offices are in London, England, but whose operations extend over a large part of the civilized world, is now to add Canada to its conquests. It is the "Oxo" concern that has built up an enormous business in their concentrated beef food in other lands and soon the same will be said of this concern in Canada. The invasion of Oxo will be welcomed.

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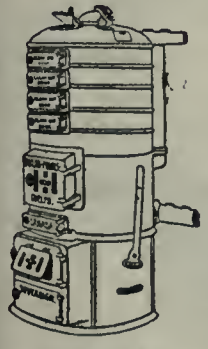
FOR HOT HOUSE HEATING



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This is the only heating apparatus that can show a clear and plain reason why it **should save coal.**

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You must pay the washerwoman fifteen cents an hour.

It is hard earned money at that. If you do your own washing, or have the servant do it, this steaming, back-breaking, temper-destroying work will cost you more than hand-chapping, cold-catching 15 cents an hour in the end.

It takes eight hours' hard labor to do the average family wash.

Eight hours at 15 cents, costs you $1.20 per week for washing.

This means $62.40 per year, without reckoning fuel for fires, or wear on clothes.

We will save you half of that—or No Pay.

We will send any reliable person our "1900 Gravity" Washer on a full month's free trial.

We don't want a cent of your money, nor a note, when we ship you the Washer on trial. We even pay all the freight out of our own pockets, so that you may test the machine as much as you like before you agree to buy it.

Use it a full month at our expense. If you don't find it does better washing, in half the time, send it back to the railway station, with our address on it—that's all.

We will then pay the freight back, too, without a murmur.

But if the month's test convinces you that our "1900 Gravity" Washer actually does 8 hours' washing in 4 hours' time—does it twice as easy—far better, without wearing the clothes, breaking a button or tearing of lace, then you write, and tell us so.

From that time on you pay us every week, part of what our machine saves you, say 50 cents per week, till the Washer is paid for.

Each "1900 Gravity" Washer lasts at least five years, yet a very few months, at 50 cents per week, makes it entirely your own out of what it saves you on each washing.

Every year our Washer will save you about $62.00. Yet the "1900 Gravity" Washer won't cost you a cent, under our plan, because we let it pay for itself. You need not take our word for that. We let you prove all we say, at our expense, before you decide to buy it on these terms.

Could we risk the freight both ways with thousands of people if we did not know our "1900 Gravity" Washer would do all we claim for it?

It costs you only the two-cent stamp on a letter to us to bring this quick and easy Washer to your door on a month's trial.

That month's free use of it will save you about $2.00. You thus risk nothing but the postage stamp to prove our claims, and we practically pay you $2.00 to try it.

This offer may be withdrawn any time if it crowds our factory.

Therefore WRITE TO-DAY, while the offer is open, and while you think of it. A postcard will do.

Address me personally for this offer, viz., C. H. Y. BACH, Manager The "1900" Washer Company, 357 Yonge street, Toronto, Ont.

The above offer is not good in Toronto or Montreal and suburbs—special arrangements are made for these districts.

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"Windsor Table Salt is the salt for us. We pay our money for good salt —made right here in Canada—that every one knows is absolutely pure.

We certainly won't pay fancy prices for an imported salt with a fancy name."

Windsor salt is all salt —pure, dry, dissolves instantly, and lends a delicious flavor to every dish.

IT'S WINDSOR 15

Cartage Charges in Toronto

Editor, THE CANADIAN HORTICULTURIST: It was somewhat refreshing to read the remarks on "Cartage Charges in Toronto," in the September issue. The Clarkson growers have been thinking that they were a pretty good lot of fellows around Burlington and Aldershot, in fact we were told by some of the commission men that the growers there did not object to the extra charges. On the face of it the charges did not seem very much, but upon investigating, it is a big consideration, especially on the six and eleven quart baskets. Take for instance, the 11 quart: When the contents sell for 20 cents a basket, expenses are for basket 3¼ cents; cover 1½ cents; express charges 5 cents; commission 2 cents; cartage 1 cent; total 13½ cents. The remaining 6½ cents goes to the producer. There are thousands upon thousands of baskets sold for this figure and thousands are sold much less and of course, the cheaper the sale, the harder the cartage hits.

If the commission men did all their carting, they would draw forth a little sympathy but such is not the case. As it is, it is well known that they do not do one half. The Clarkson people are well aware of that. The Clarkson shippers have kicked most vigorously from the very first. In fact, our association resorted to a kind of boycott, perhaps not a laudable action. It occurred to one member that there were too many commission men in the business to make it pay and he suggested that the Clarkson Fruit Growers' Association pledge themselves to ship to six out of the eleven commission houses and it was acted upon, but it caused a certain amount of discomfort at a certain time of year. If the whole fruit growing district had taken such a step, it would have caused greater discomfort still. This way of course would be a bit drastic, but it would almost have served them right. I certainly agree with Mr. Fisher in this respect that if they want more for their work, that a straight amount of percentage be added.—W. G. Horne, Clarkson, Ont.

Growers and lovers of bulbs should send to The Steele Briggs Company for a copy of their autumn catalogue. Besides bulbs it offers a large collection of plants and seeds.

A short course in fruit growing will be given at the Ontario Agricultural College, Guelph, from Jan. 25 to Feb. 5, 1910. Write to President G. C. Creelman for a copy of the calendar that describes it.

THE CANADIAN HORTICULTURIST is just the paper an intending fruit and vegetable grower needs.—R. A. Bageley, Kootenay Co., B.C.

The Ontario Fruit Growers' Association has been successful in having the application of the Canadian Freight Association, for an increase in rates on fruits to the West, dismissed by the Board of Railway Commissioners. This will be of great advantage to Ontario fruit growers, particularly to those in the Niagara district.

In connection with the fruit exhibit at the annual meeting of The Virginia State Horticultural Society, to be held at Winchester, Va., Jan. 5 and 6, 1910, a special premium is offered by Dr. J. B. Emerson of Albermarle Co., Va., open to competition from any State or Canada, of $50 for the best five boxes, one box each of any of the following: Albemarle Pippin, Winesap, York Imperial, Ben Davis, Grimes Golden, Jonathan, Spitzenberg, Baldwin, Paradise Winter Sweet, Rome Beauty. All fruit growers in the countries named are invited to enter for this competition and to notify the secretary, Mr. Walter Whately, Crozet, Va., of their entries by Dec. 25th.

BLACK KNIGHT
STOVE POLISH

"Black Knight" Stove Polish was made for women —made to save them work, worry and weariness.

"Black Knight" is the easy-to-shine Stove Polish. Just a few light rubs, with cloth or brush, brings a brilliantly black polish that lasts.

It's ready to use — no mixing—no soiling hands— no dirty work—and cheaper than any other because it goes farther and you get a bigger can for 10c.

Get "Black Knight" at your dealer's—or send 10c. for a large can free postpaid.

THE F. F. DALLEY CO. LIMITED, Hamilton, Ont. 19

Makers of the famous "2 in 1" Shoe Polish.

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Will be pleased to keep you advised regarding the condition of the European Markets. If you have any Apples for export, call or write

FRED. BARKER
25 Church St., Toronto, Canada

COMING EVENTS

Under this heading, notices of forthcoming exhibitions and meetings of horticultural importance will be published. Send the information as long in advance as possible.

CONVENTIONS.

Toronto, Ontario Vegetable Growers' Association .....Nov. 11.
Toronto, Canadian Horticultural Association .....Nov. 10-11.
Toronto, Ontario Fruit Growers' Association .....Nov. 10-11.
Toronto, Ontario Horticultural Association ....Nov. 9-10
Macdonald College, Que., Quebec Pomological Society .....Dec. 8-9.
Victoria, British Columbia Fruit Growers' Association .....Jan. 28.

EXHIBITIONS.

Denver, Colo., Colorado National Apple Exposition .... Jan. 3-8.
Spokane, Wash., National Apple Show.. .....Nov. 15-20.
Toronto, Ontario Horticultural..Nov. 9-13.

POULTRY DEPT.

Conducted by S. Short, Ottawa

Extra care and attention to the poultry is necessary at this season. First, as the young stock grow, they need more nourishment. Care should be taken that they have all the food they require. Stronger diet than in summer may be substituted now with advantage. Ground bone and meat meal should be added to the rations and every assistance given the fowl, both old and young, to get into condition before the long winter confinement sets in. The old fowl need extra feeding to put them through the moulting season and the young to hasten development and early maturity.

Secondly, as the ground gets cold and damp and as there is little heat in the sun's rays, the fowl need attention to prevent the birds from becoming lousy. It is easy to find lice on white fowl. At night, the lice are easily seen on the white hackle feathers. A thorough dusting with powdered sulphur or lice killer should be given each bird every week or two or until there is evidence that they no longer need it.

Lastly, the sleeping quarters should be in proper shape so that the fowl are comfortable at night, with no draughts or overcrowding. Fowl that are insufficiently fed or lousy and sleeping in draughty houses will lose weight very fast and are susceptible to disease at this time; it is not likely that they will lay much the coming winter even if they are properly cared for later on.

It is better to at once put the layers in their winter quarters and to feed for eggs. The surplus stock should be disposed of. It is poor economy at the prevailing price of grain to hold them for a higher price later on especially if space is limited. As breeders are glad to get rid of spare cockerels and other birds, now is the cheapest time to invest in pure-bred stock.

For the assistance of beginners who are undecided as to which breed to invest in, I may say that, although the standard of perfection contains a long list of breeds, practical poultry men consider the following six breeds, the best for general use in Canada:—White Wyandotte, Barred Ply-

Washing Without Rubbing

No work—no tired arms—when the washing is done with

"PURITAN"

Reacting Washing Machine

Grandmother, or any of the children, can do the entire week's wash in an hour with the "PURITAN" It is the only washing machine made in Canada that has the Improved Roller Gear.

Write us for booklet If your dealer does not handle the "PURITAN". Don't take a substitute —there are none "just as good".

DAVID MAXWELL & SONS - St. Mary's, Ont.

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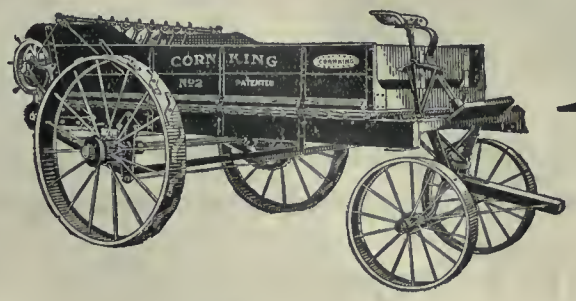

Barnyard Manure is the ONE PERFECT FERTILIZER

BARNYARD manure contains all the elements of plant food. Every ton of stable manure is worth from $2.00 to $4.00 or more, based on the commercial value of its fertilizing content. But, based on the increased crop yield, it is worth much more—just how much depends upon how you care for it and spread it over your land.

Get full value—not half value—out of the manure. There is only one way. Spread it with a machine which pulverizes all of it, and spreads it uniformly, and as you want it, broadcast over the land or in rows.

Your farm will maintain its own fertility if you give it a chance. You don't need patent fertilizer which only contains a few of the necessary plant elements. Save the manure and spread it with an

I. H. C. Spreader

You make the wisest possible investment when you purchase a a Cloverleaf or a Corn King spreader.

These machines differ in many features of construction and operation, but they are right-working, and that is the essential point. They avoid the waste of manure, greatly reduce the time and labor of handling, and rob manure spreading of its disagreeable features.

You may have a large farm; you may have a small farm. No matter what the size, you will find an I. H. C. spreader to suit your requirements.

Join the ranks of Soil-Builders. It will pay you big money.

Call on the International local agent—see him about a spreader for your own use. He will cheerfully give you catalogues and complete information; or, if you prefer, write nearest branch house for further information.

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Look for the Trade-Mark. It is a Seal of Excellence and a Guarantee of Quality.

mouth Rock, Buff or White Orpington, Rhode Island Red, White Leghorn and Black Minorca. My opinion is that the first named is easily the best for this province, although one cannot go very far wrong with any of these breeds, if chosen intelligently with a view to the conditions and space in which they are to be kept.

Apple Storage.—The New Brunswick Cold Storage Co., Ltd., advise that a good many of the inquiries from their advertising want to know if the railways charge extra for having goods lie two, three or four months in their warehouse, in transit to the Old Country. The answer is that they do not; that the carriers so highly value the matter of getting the rail-haul over during seasonable weather and the stock accumulated at tide-water in advance of the winter's rush that this premium on such storage is given freely. Not all railways treat the matter by the same method but the result is in all respects the same—on proof of exportation the through rate on the export basis prevails, at just the same cost as would be if the barrel of apples went through direct from the orchard to the pier at Liverpool, or anywhere else. These adjustments are looked out for by the warehouse people at St. John. Dealers wishing warehouse advances also wonder how their documents can be negotiated so to avoid delays in effecting deliveries at the other side. The company's business in these matters is to co-operate with the St. John correspondents of the customer's bank so that everything may be arranged for him just as though he were on the spot. These correspondents will verify any warehouse receipts on arrival of goods or complete any releases or advanced charges on their re-shipment—merely a further twentieth century convenience handled every day in these and other lines.

I would like to thank you for the refreshment and pleasure that THE CANADIAN HORTICULTURIST has given me, as well as for all the instruction that I have obtained from its pages.—Mrs. W. D. Oakeley, Ottawa.

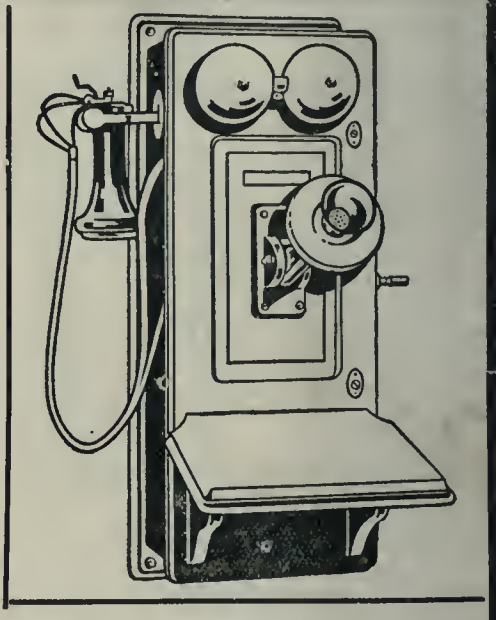
Don't Throw it Away
Does Your Granite Dish or Hot Water Bag Leak?
USE MENDETS
A PATENT PATCH
They mend all leaks in all utensils—tin, brass, copper, graniteware, hot water bags, etc. No solder, cement or rivet. Anyone can use them; fit any surface, two million in use. Send for sample pkg., 10c. COMPLETE PACKAGE ASSORTED SIZES, 25c., POSTPAID. Agents wanted.
Collette Mfg. Co., Dept. V. Collingwood, Ont.

SMALL FRUIT PLANTS

Gooseberries, Josselyn, Red Jacket, Downing, Pearl, Houghton.—**Currants,** Perfection, Ruby, Cherry, White Grape, Lee's Prolific, Champion, Black Naples, Victoria.—**Raspberries,** Herbert, Cuthbert, Marlboro, Brinckle's Orange, Golden Queen, Strawberry-Raspberry.—**Garden Roots,** Asparagus, Rhubarb, Perennial Celery.

WM. FLEMING, Nurseryman, Box 54, Owen Sound, Ontario

Rural Phones Solve These Every-day Problems



Problem 1. Bad Roads:

The old way was to curse nature and idly await sun's return.
The new way is to telephone for what you want, and smile because you get the information in a thousand part of the time.

Problem II. Weather Forecasts:

The old way was to work on belated information, and to excuse the losses with "That's what the farmer has to put up with."
The new way is to telephone every morning to the weather man and overcome much of the needless hustle and bustle of the old way.

Problem III. Prices Current:

The old way was to ask a neighbor or trust to the newspapers.
The new way is to get information in the nick of time over the 'phone, thus knowing when to sell and when to hold.

Problem IV. Emergencies:

The old way of procedure when some one took sick, was to harness up the "driver" and make all haste for the doctor. Effort in this direction often procured as its only result the information: "doctor is out."
The new way is to call up the doctor on the phone, and know instantly what can be done pending the medical man's arrival.

Problem V. Help:

The old way was to allow men to go on boys' errands—waste half a morning walking to Smith's only to find that his harrow was already loaned. The new way is to make the phone your errand boy—buy, borrow, beget by means of the "silent partner."

We have prepared a Booklet describing fully a rural phone system. Hadn't you better instruct us to send this interesting bit of information, seeing that it costs you nothing. ASK FOR BOOKLET 2216

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MONTREAL TORONTO WINNIPEG VANCOUVER REGINA

The Canadian Horticulturist

Vol. XXXII DECEMBER, 1909 No. 12

The Cold Storage of Apples and Other Fruits*

J. A. Ruddick, Dairy and Cold Storage Commissioner, Ottawa

ANYONE who has followed the matter closely, must be convinced that there is a fine opportunity to improve the fruit trade of Ontario by the intelligent employment of cold storage and refrigeration in transit. I could quote many instances where the value of apples stored or shipped in cold storage has been greatly enhanced. As an instance, a sales catalogue from Glasgow of recent date, shows that cold storage Kings ex- S. S. "Pretorian," fetched thirty-one shillings, while the highest price paid that day for the same variety shipped as ordinary cargo in the same steamer was twenty-four shillings and six pence. Other varieties show similar differences: Wealthys in cold storage sold for twenty-four shillings, as compared with fourteen shillings and six pence for those carried as ordinary cargo, and so on. I quote these figures merely to indicate the possibilities of shipping early apples in cold storage and not as an attempt to prove that such results could always be obtained.

As fruit growers, rather than shippers, you are more interested in cold storage on land, and I shall confine myself to that phase of the question and get as near to the orchard as possible, for that is where cold storage will be the most effective. There are, however, some things which cold storage will not do and it is just as well that we should have at the beginning a clear understanding of its limitations as well as its possibilities. Reference has frequently been made to the large quantities of apples which are wasted every year in Ontario orchards, especially when there is a heavy crop, and it has been urged that if cold storage were available, all this enormous loss would be avoided. I need hardly say to experienced fruit growers, that such an assumption is an absolute fallacy; that it is not cold storage which is needed primarily, but better orchard methods and management. The fruit grower who depends on cold storage to preserve windfalls, worm-eaten, bruised and skin punctured apples from early decay, will be grievously disappointed.

The lowest temperature which it is possible to employ does not absolutely stop either the life processes of the apple or all of those destructive changes which include various forms of rot, etc. It only checks them, but some forms of decay are checked more effectively than others. Experiments at Geneva showed that pink rot, black rot and bitter rot developed very little in cold storage, but that the ordinary soft rot, which is due to the growth of the common blue mould (*Penicillium glaucum*) and which is probably the most common form of apple decay is not prevented to any marked extent. Fortunately, the apple resists the attacks of this mould, unless there has been some puncture or weakening of the skin due to fungus or bruising, until it begins to deteriorate with old age. The injury need only be of the slightest character—a mere pin prick, for instance—to provide an open door for the entrance of the spores of the destroying mould.

If you place over-mature or ripe apples in cold storage, they are bound to go down in a short time. Let me here digress to make myself clear on the two terms, "maturity" and "ripeness." I would call an apple mature when it is fully grown and well colored for the variety, and call it ripe when it reaches its best condition for eating. The length of time which elapses between maturity and ripeness varies greatly according to variety. In some earlier or quick ripening varieties, it is only a matter of days, while in others, it becomes a question of weeks and even months.

The foregoing is probably more of a practical definition than a scientific one, for I suppose nature intends all apples to ripen fully on the trees, but man with his perverseness has so shifted things around that he is growing many varieties in latitudes and climates where they cannot possibly do so. I do not say there is anything wrong in that. We call such apples mature when they reach the stage in which we are accustomed to find them as taken from the tree.

EARLY VARIETIES SHOULD NOT BE HELD

The earliest varieties should be rushed to the market as quickly as possible to take advantage of the early trade. Prompt chilling before shipment is all that cold storage should be expected to do for apples of this class. Even with varieties whose qualities would commend them in competition with others past their regular season, some caution is necessary, because if an apple is carried much past the time when experience has taught every one that it has reached its best and may be expected to "go down", dealers would hesitate before handling it.

*Extract from a paper read at the convention of the Ontario Fruit Growers' Association in Toronto last month. This will be followed in next issue by Mr. Ruddick's remarks on the pre-cooling of fruit and on the construction of cold storage warehouses and cooling rooms.

Read and Heed

THE CANADIAN HORTICULTURIST is a splendid publication ably edited and artistic and attractive in make up. I would urge all the horticultural societies in Ontario to subscribe for this magazine for all their members. It gives the best value for the money. Some horticultural societies do not subscribe for any horticultural publication. Others are taking foreign periodicals. THE CANADIAN HORTICULTURIST is needed in Canada. It is the only horticultural publication of the kind in the Dominion. Were it not for the fact that thirty-five or forty horticultural societies now subscribe for THE CANADIAN HORTICULTURIST for all their members, it could not be published and Canada would be without a horticultural magazine. Our societies should look at this matter not only from a local standpoint but from a national standpoint as well and be willing to lend a helping hand to a publication that is working vigorously and courageously in the interests of all the societies. Remember that the field in Canada is restricted. In the United States it is practically unlimited. Let us stand by and support THE CANADIAN HORTICULTURIST if we are in favor of Canada for Canadians.—Major H. J. Snelgrove, Cobourg, Ont., in his presidential address before the Ontario Horticultural Association at its recent convention.

It is not an easy matter to determine experimentally as to the relative keeping quality of different varieties of apples in cold storage, because of the difficulty of securing the different varieties at exactly the same stage of maturity, and unless this is done, any test is unreliable and the results are misleading. Generally speaking, those varieties which ripen most slowly will keep the longest.

Some varieties hold their quality much better than others. That is to say, certain varieties retain their crisp juicy texture and characteristic flavor almost to the end, while others become mealy and insipid long before the structure of the apple breaks down. Of course, they act the same way in any kind of storage. This, it seems to me, is a rather important consideration.

LENGTH OF TIME IN COLD STORAGE

It is safe to say that any variety of apples may be kept as long as it is commercially desirable to do so. Late winter apples may be kept a year without difficulty; fall and early winter varieties, from two to four months. Canadian Fameuse of the previous season's growth were shown in good condition at the Dublin Exhibition in the month of August. Of course, only a percentage of those originally stored were sound at that time, and the circumstance does not prove that it would pay to keep the Fameuse to that date.

(To be continued)

Over-planting of Strawberries and the Western Markets

AT the convention of the Ontario Fruit Growers' Association in Toronto, last month, an address on the above subject was given by Mr. Robert Thompson, of St. Catharines. The following is a synopsis of it:

"In taking up this subject we must look at it from a disinterested standpoint. Strawberries are not overplanted, but there is an under-distribution. The great consuming public, except in a few centres, have not begun to get all of the berries they want, and, in many instances, they have had to pay very high prices. Of course the fruit growers, who have been induced by the fairy tales of the real estate agents and of others who have land to sell (and who are not over-exact in representations of profits derived from fruit growing) to purchase land at high prices expecting to obtain fancy prices for their fruit, will say that berries are overplanted and prices too low. But we must remember that berries can be grown over a large area of our country and, if there should at any time be too large profits, there will be many to enter into the production. We must expect to be prepared to sell at a reasonable price and at the same time be prepared to use common sense and good judgment in disposing of the fruit.

"The grower has many troubles to contend with. If he has by good care and cultivation secured a good crop, he need not feel that he is bound to sell to the canner or the jobber at the first price offered, if it is not deemed sufficient. The general market will always pay a fair average. If we have the promise of a full crop, we have growers who always get cold feet, and rush to sell at any price, and if they can get the promise of any rise in the market, they think they are making a good deal, when as a matter of fact, if any number sell this way they make it impossible to have any rise in price.

"Take the past spring, for example. The canners had sold all of their stock of canned strawberries and were bare but they anticipated a good crop of berries and put the price of berries from three and three-quarters to four and a half cents a box. Many growers thought they had to take this price and sold; others held off. Owing to the cold weather, berries ripened late and came in a rush.

Two General Displays at Toronto Show

The very attractive display of mixed fruits in the foreground was put up by the St. Catharines Cold Storage and Forwarding Co., and won first prize. At the farther end of same table is the exhibit of the Grantham Fruit Growers' Association. See page 271.

Prices fell for three or four days and the factories bought at from two to three cents a box. Of course, this was a serious loss to the growers who so sold. Owing to the low offers, most of the berries were shipped and the shippers did better than factory prices.

"I have investigated the sales of many growers, and find that in every instance when they put up their berries properly they made more by shipping. I will give one grower's returns from this—about medium returns—and he shipped all of his crop to Toronto to commission houses, so that he had no fancy outlet. He had 512 crates and they netted him four and one-sixth cents a box after paying for crates, boxes and charges. He says that he had four advantages over the factory: First, disposal of whole crop; second, cash every week (important); third, handling everything new (very important); fourth, no canning factory abuse (most important). When the berries were pretty well picked, the factories had not nearly filled their orders and the pack of strawberries was again short.

THE NORTHWEST MARKET

"In regard to the northwest market as an outlet: I feel confident that within a few years, that market will take a lot of our berries. Our growers sent out three cars of berries this season with, on the whole, fair success financially and gained a lot of valuable experience. Before sending the berries our growers were skeptical as to the berries carrying safely. The consumers in the west were doubtful also. After the berries were shipped, bought and used, we found that the berries would carry safely, that the buyers found that our berries were better in flavor and would stand up long enough to use and can, and they are prepared to buy Ontario berries more largely in the future.

"One word as to that market: Our association sent to the west this season nearly 150 carloads of small fruits, and there have been almost 500 cars sent from the Niagara district. Our experience is that if we go after this market in a business-like manner and arrange to supply the public regularly with Ontario fruit that the people out there are ready to give our fruit the preference; but to succeed we must use good packages, load the cars properly, see that the fruit is cooled quickly, have the fruit picked carefully, and at proper stage of ripeness for each variety.

"We must also see that the Railway Commission will have the rates lowered to points west of Brandon. The rate of from $1.00 to $1.60 a hundredweight to all points west of Brandon is largely prohibitive. If we can secure rates to the western points, in proportion to what we have to Winnipeg, Portage la Prairie and Brandon, inside of three years, more fruit will be shipped west from Ontario than will be shipped to Ontario and eastern markets."

How Grapes are Grown in the Chautauqua Grape Belt*

D. K. Falvay, Westfield, New York

THERE are 35,000 acres of bearing vineyard in the Chautauqua grape belt. The Concord is the standard variety. Some Niagaras are raised, but of late years they have not found a ready market, the price rarely being equal to that of the Concord. Only very few of other varieties are grown, and are mostly sold in local markets.

Our grapes were formerly set eight feet in the row, the rows being nine feet apart. For the past few years the roots have been set six or seven feet apart in the row, the object being to put up fewer canes from each vine and still maintain an average. The posts should be between the third and fourth vines to prevent the wires from sagging when loaded.

The best roots obtainable should be purchased. They are now so graded that those designated "Extra Number Ones" are the kind to get. Other grades are set, but the best are always the most satisfactory. During recent years newly set vineyards have not done as well as in former years. The cause has not been definitely determined. It is believed by some that the vitality of the grape cuttings has been weakened by the general deterioration of the vines from which the grape bush is taken for cuttings. With all the fungous diseases that infest the vines, the grape root grower should use extra precaution in obtaining grape brush for cuttings. No wood should be used unless taken from sprayed vineyards.

These roots are set very deep, from fourteen to eighteen inches below the general surface of the soil. As the ground is worked, the high centres are gradually worked toward the roots. Corn or potatoes are usually planted between the grape rows the first year. The first year's growth is cut back to two or three buds the second spring. The third spring the canes are tied up; not more than two canes should be used. One and a half canes are better, that is, one cane to the top wire and a shorter one to the bottom wire, the shorter cane making the better wood growth for the following year. Invariably the best growth of wood is near the top of the cane, and if both canes are tied to the top wire the growth of wood will be too far from the ground to make a good shaped vine. The first wire is usually twenty-four inches from the ground; the second wire is from twenty-six inches to twenty-eight inches from the lower wire.

The canes are tied with No. 21 wire cut about five inches long, and so twisted around the cane and trellis wire as to come off with the old wood. String is used when necessary to tie any of the canes to the lower wire. Tie a loose knot to prevent girdling. We tie but once, unless some of the vines should be broken down with wind or other causes. A good tier can tie an acre a day in a vineyard with four canes to the vine. There are from 540 to 600 vines per acre according to distance apart in the row.

It requires about six years to get a strong vineyard; that is, one that is capable of supporting from four to six canes. The constant temptation among vineyardists is to tie up too many canes on young vines; and by so doing they injure their vineyards seriously.

In old vineyards we usually put up from four to six canes if the vine will support that many. The judgment of the trimmer must be exercised constantly. He must treat each vine individually, and not only train for the present year but also must have in view which canes and buds will produce wood in the proper place for the following year's crop.

An extra good trimmer will trim an acre of heavy vines in from ten to twelve hours. The work is done during the winter months. After the brush is pulled from the wires it is drawn out by a team hitched to a long pole. Two men with a team can pull out and burn the brush from ten to twelve acres in a day. The work in the vineyard is all done by horse power except the hand hoeing. The one-horse plow, the gang plow, the spring-tooth harrow, and the two-horse vineyard cultivator with the disc wheel to guide it, are the principal tools used during the season. The horse-hoe, of course, is used for cleaning out under the wire.

The Chautauqua grape grower has the method of cultivation reduced to a science. Nowhere are grapes cultivated so cheaply or rapidly as in Chautauqua County.

A vineyard should be gang-plowed twice during the season, horse-hoed and hand-hoed once, and be cultivated every ten days, at least, up to August 10 or 15. The cost of trimming, tying and care should be about $13.00 an acre up to time of harvesting. Vineyards that are infested with grape pests, such as the root worm and leaf hopper, require special treatment—that is, cultivation and spraying—which adds to the expense quoted.

Cox's Orange Pippin, an English apple greatly in favor with English consumers, is being planted at Vernon, B. C., and other places in the Okanagan Valley for export. Newtown Pippin promises to succeed well in Kelowna district.

Photographs of orchards and of orchard operations, such as spraying and pruning, are wanted for publication in these columns.

*A portion of a paper read at the convention of the Ontario Fruit Growers' Association. Mr. Falvay's remarks on spraying, harvesting, cost of production and marketing, will be published in later issues of THE CANADIAN HORTICULTURIST.

A Glimpse of the Vineyards in the Chantanqua Grape Belt of New York State where 35,000 Acres of Grapes are in Bearing.

How to Make Work of Horticultural Societies Effective*

Prof. H. L. Hutt, Ontario Agricultural College, Guelph

THE sixty or more horticultural societies of the province of Ontario are doing a splendid work for the general uplift of the communities where they are organized. The aim and object of these societies as stated in the Act under which they are organized is to encourage improvements in horticulture as follows:

(*a*) By holding meetings for discussion and for hearing lectures on subjects connected with the theory and practice of improved horticulture.

(*b*) By promoting the circulation of horticultural periodicals;

(*c*) By importing and otherwise procuring seeds and plants of new and valuable kinds;

(*d*) By offering prizes for essays on questions of scientific inquiry relating to horticulture;

(*e*) By awarding premiums for the invention or improvement of horticultural implements and machinery for the production of all kinds of vegetables, plants, flowers and fruits, and generally for excellence in any horticultural production and operation.

Many of the societies are accomplishing probably all or more than the Act originally aimed at. There are others, however, which we believe are not yet living up to their full opportunity. It is for the purpose of helping these to do better that we have consented to lead the discussion upon this subject.

The twofold purpose of the work of the horticultural societies is to benefit the members themselves and the whole community about them. The success of the work is usually in direct proportion to the unselfishness of the members in seeking their own good and their desire to benefit the community at large. We wish to call attention first to some of the means by which the work of the society may be made a benefit to the members.

First, by holding at least four or five meetings during the year at which timely topics are introduced and fully discussed, the members being encouraged to introduce subjects themselves and take an active part in all discussion.

Second, by furnishing good literature in a choice of two or more of the leading horticultural magazines, or good horticultural books, either as a premium or at a greatly reduced rate.

Third, a choice of a small selection of good reliable seeds, bulbs, plants or trees. The premium list should be prepared with a view to enabling each member to choose something of particular value to himself, either for house or outdoor culture. Great care should be taken in the selection of varieties that they are suitable for the locality.

*A paper read at the recent convention of the Ontario Horticultural Association.

There is a danger, however, of societies putting too much stress upon their premium list, thus over-emphasizing the importance of the value of the work to members and not emphasizing enough the good the society may do as an educational institution to encourage the work through the whole community. With respect to the benefit of the societies to the communities in which they are organized I would like to call attention to some of the means by which the work may be made more effective:

First, by interesting school children in the work through the distribution of seeds, bulbs and plants for growing either in their home gardens or school gardens wherever these may be established. In connection with such a distribution, there should be held a flower show at which the children bring their flowers and plants for competition, thus arousing enthusiasm and keeping up the interest in the work.

The Dedication of the Sun-dial

An interesting ceremony for children in school gardens as described by Miss Louise Klein Miller of Cleveland, Ohio, in an illustrated talk at convention of Ontario Horticultural Association. The proceedings of the convention are reported on another page of this issue.

Second, interesting citizens in beautifying their home surroundings by instituting lawn and garden competitions. Such competitions have proved valuable in encouraging civic improvement at Guelph and in many other sections of the country, and might be adopted to advantage in many others.

Third, interesting all citizens by meetings and the use of the press in the general improvement of the streets and walks, grading and keeping of boulevards, planting and care of shade trees, removal of unsightly fences, buildings and bill boards, checking telegraph and telephone companies in their unlawful mutilation of shade trees, and pressing for the removal of overhead wires wherever they enter the town limits or interfere with street trees.

These are some of the objects which every horticultural society should aim at for the good of the whole community. To accomplish the best results there should be united effort. The officers of the society should try to get the hearty co-operation of every influential citizen and organization in the community. There is strength in numbers, and horticultural societies may add greatly to their strength by getting the co-operation of teachers, school boards, boards of education, boards of trade, town or city councils and, especially, committees, boards or commissions having in hand the care of parks, streets and boulevards.

I know of several small struggling societies with but limited funds at their disposal, which are undertaking the task of making and maintaining town parks for the good of the citizens generally. Such efforts are certainly commendable, but we believe in some cases more effective work could be done by the societies seeking for the appointment of park boards or commissions, under the Ontario Parks Act, which provides for the appointment of a park board or commission by the council in any town or city where the citizens duly petition for the same. This Act places at the disposal of such boards funds to the extent of one-half mill on the assessment. Such boards, therefore, are in a much better position to undertake the work of making and maintaining parks and boulevards than a horticultural society with but meagre funds.

As to what such boards can do in the improvement of towns and cities through the improvement of boulevards and planting of trees, is not as fully appreciated here in Ontario as it should be. In this respect, we in old Ontario, have much to learn from the newer towns and cities of the western provinces. In the cities of Winnipeg, Brandon, Regina, Calgary, Edmonton, Vancouver and others, park boards level and grade the boulevards from the curb to the property line, seed, mow and, where necessary water the grass on such boulevards. They are also planting trees and shrubs upon them in a way that these western cities will soon be as far ahead of our eastern cities from a standpoint of beauty and neatness as we can well imagine.

There are one or two other particulars that I wish to refer to in which the work of the societies may be made more effective. One is by the more extensive use of printers' ink in properly advertising meetings and reporting the proceedings

more or less fully in the local papers. We find, as a rule, the societies which are doing the best work are those in which the newspaper men are prominent members, where they use their ability in this particular to place the work prominently before the public. A strong effort should be made by every society to secure the hearty co-operation and support of the local newspaper men, and where these are not to be depended upon, the secretary should see that meetings are duly advertised and good reports published.

One other point I wish to refer to, and that is that every society, particularly the weaker ones, should endeavor to get in touch with what other and stronger societies are doing, by sending one or more delegates to the annual convention of the Ontario Horticultural Association that they may take note of what is being done elsewhere, and be in a better position to help on the work in their own community when they return.

List of Best Phloxes

AT the convention of the Ontario Horticultural Association in Toronto, in November, the committee on plant nomenclature made the following report: "The members of the committee are gratified to learn that within the past year a movement has been inaugurated in one or more of the colleges of higher learning in this country to give horticulture a place in the curricula of these institutions. This movement is still in its incipient stage. Your committee recommends the movement as one deserving of all the encouragement that can be given to it by this association. It is hoped that the day is not far distant when it will be generally recognized that to know the principal economic and ornamental plants suitable for growth in this country—to know them not only as to their genera and species, but to know the important varieties accurately by name, including the correct spelling and pronunciation of the names, and also to know the chief characteristics that distinguish one variety from another,—is an essential part of a liberal education. This feature of education if it be intelligently promoted and liberally supported must assuredly have the effect of adding much to the pleasure and happiness of the people of our country.

"The efforts of your committee in the past year have been confined chiefly to the completion of the lists of four flowers, viz., perennial phlox, dahlia, gladiolus and iris,—referred to in last year's report as being incomplete. It is hoped that these lists will be helpful to the members of the horticultural societies, and the publication of them will lead to a large increase in the planting of these important flowers."

PHLOX PANICULATA (DECUSSATA)

Antonin Mercie. — Height 3½ feet; flowers, bright violet suffused with white, large, white centre.

Argon.—Height, 2 feet, 9 inches; flowers, lilac pink suffused with white with narrow rosy ring about centre.

Berenice.—Height, 3½ feet; flowers, pure white.

Cameron.—Height, 3 feet; flowers, pure white with bright purplish red centre.

Capt. Wilhelmy. — Flowers, Tyrian rose.

Consul H. Trost.—Flowers, pure red with French purple centre.

Coquelicot.—Height, 2½ feet; flowers, orange scarlet with purplish centre.

D. Bois.—Height, 2½ feet; flowers, bright rose magenta.

Daniel Lesueur.—Height, 3 feet; flowers, bright violet and white.

Eclaireur. — Height, 2½ to 3 feet; flowers, bright rose magenta shading lighter.

Etna.—Height, 2 feet 8 inches; flowers, bright crimson red with darker centre.

Faust.—Height, 3 feet to 3½ feet; flowers, pure white with large mauve centre.

Fiancee.—Height, 3 feet; flowers, white.

Jocelyn.—Height, 2 feet to 3 inches; flowers, crimson carmine shading paler.

Lamartine.—Height, 3 to 3½ feet; flowers, bright violet with large white centre.

Le Cygne.—Height, 3½ to 4 feet; flowers, creamy white.

Mounet-Sully.—Flowers, old carmine red with crimson carmine centre.

Pantheon.—Height, 2 to 2½ feet; flowers, crimson pink suffused white about centre.

Pyramide.—Height, 3 to 3½ feet; flowers, pure white.

Selma.—Flowers, lilac rose with conspicuous crimson eye.

Sir Richard Wallace.—Height, 3½ feet; flowers, pure white with rosy magenta centre.

Tapis Blanc.—Height, 3 feet; flowers, crimson pink suffused with white.

Tragedie. — Flowers, carmine with darker centre.

Wm. Robinson.—Height, 3½ feet; flowers, violet rose suffused with white, darker centre.

PHLOX GLABERRIMA (SUFFRUTICOSA)

Beauty of Edinburgh.—Height, 2 feet; flowers, white shaded with light lilac.

Burns.—Height, 2 feet; flowers, rosy purple.

Clouded Gem.—Height, 2 feet; flowers, white shaded with rosy purple.

Forerunner.—Height, 3 feet to 3½ feet; flowers, creamy white.

Snowden.—Height, 2½ feet; flowers, pure white, rose centre.

Miss Lingard.—Flowers, white with lilac eye.

EARLY BLOOMING PHLOXES

P. amoena, Simms.—North America; height, 5 to 6 inches; flowers, bright rosy pink.

P. divaricata, L. (Wild Sweet William).—North America; height, 6 to 12 inches; flowers, lilac to mauve.

P. ovata, L. (Syn. *P. carolina*, L.)—North America; height, 12 to 14 inches; flowers, deep pink.

P. subulata atropurpurea.—Height, 6 to 8 inches; flowers, purplish rose.

P. subulata Newry Seedling.—Height, 6 to 8 inches; flowers, lilac, paler towards centre.

P. subulata verna.—Height, 6 inches; flowers, deep rose.

Summer House and Pergolas, with Children at work in one of the School Gardens of Cleveland, Ohio.

This school was referred to by Miss Louise Klein Miller, Curator of School Gardens, Cleveland, in one of her addresses before the convention of the Ontario Horticultural Association in Toronto last month. See report of convention on page 277.

The Arrangement of a Flower Garden*

M. E. Blacklock, Toronto

THERE are certain underlying principles that make for beauty, and having due regard for them, we can each work out our own ideas, and not be mere servile imitators of others. Very many people have exquisite flowers, in endless variety—very few people have really beautiful gardens. A great deal more depends on the laying out of a garden than on what is grown in it. Two or three shrubs and a clump of hollyhocks, if well placed, may give the greatest pleasure and satisfaction to the owner, and to every passer-by, but, if the shrubs are dotted over the lawn, and the hollyhocks planted in a straight row, while you might admire the individual flowers, the effect would be irriitating to any one with any artistic feelings. A clear central space is needed in order to see things with a little distance to add to the enchantment, and, planting in straight rows is the least beautiful way of growing flowers.

What is true of shrubs being dotted over a lawn, is equally true of flower beds. If one has a very small lot, the temptation to increase the garden's capacity in this way is a very natural one, but it is far better to increase the width of one's borders and leave the central space for grass. The small lot of, say, twenty by fifty feet long, does not give room for many shrubs, but two or three should go in at the end of the lot, or if there has to be a small plot for vegetables, of, say, twenty feet square, at the end, then place your shrubs to hide the vegetable garden, and they will at the same time, form a back-ground for some of the flowers.

CHOICE SHRUBS

A very difficult matter it would be, to choose three shrubs, and three only, but my first choice would be a Persian lilac—they are so graceful in growth and so prodigal of their gerat fragrant plumes of purple bloom—this I would put in the far corner. My next choice would be a rugosa rose (preferably a pale pink one) which would flower more or less all summer, after the wealth of June blossoms were past, and with its decorative rose apples and the glory of its autumn foliage, would be a constant source of joy to its owner. *Spiraea Van Houttei* would be the next best to have. If the lot were mine, small as it might be, I should add another lilac or two along the side, either "Marie Legraye" single white, or "Mad. Casimir Perrier" doubel white, and the dark purple "Congo" with its huge flowers."

CLOTHING THE FENCES

The fences are the next important part to clothe. We have for the shady side the wild clematis (*C. Virginica*), the climbing bitter-sweet (*Celastrus scandens*) and the other bitter-sweet with purple blossoms (*Solanum Dulcamara*) and the moon-seed (*Menispernum Canadense*) to choose from, also the good old Virginia creeper. These will all grow readily in fact, they will grow in either sun or shade, provided they have enough moisture at their roots. But honeysuckles (Loniceras) of all kinds prefer a sunny spot and so does the trumpet vine, and the new and charming *Polygonum baldschuanicum*, with its slightly rose-tinted buckwheat-like flowers. The homely old scarlet runner is a vine not to be despised in certain positions, (and its delicious beans add usefulness to its other good qualities); this with nasturtiums and morning glories form a trio of annual vines that are not fastidious and will grow for any one.

THE BORDERS

With a good background of shrubs and vines, the borders almost arrange themselves. Plant your flowers where they are most likely to do well and, in nine cases out of ten, you will have them where they will look their best. For instance, the majority of lilies like their roots to be kept cool; therefore, put them were shrubs will give them a partial shade. Note the effect of lilies with shrubs for a background, and lilies planted in a bed by themselves in the open, and you will see how much more effectiev are the ones where the green background throws out their loveliness. A good large clump of Madonna lilies (*L. candidum*) in such a position, will rouse even the dullest clod to admiration. Poppies, on the contrary, like a sunny spot open to the passing breeze, which seems to love to wave their petals—and how gorgeous they look in such a position! So it is with other things. Nature seems to have specially designed them for certain places and though we may have succeeded in making them grow under different conditions, like the iris, which is naturally a water-side plant, and yet we see it flourishing in a dry sandy border, but we must own that it never shows off its beauty to such perfection as when it adorns the sides of a little slow running stream or is mirrored in the smooth waters of a pond.

In laying out your borders if you will only give up the "two by four" effect of straight lines, you will add immensely to the appearance of your garden. If you will think of your lawn as being a small lake, with vegetation of various kinds coming down to its edges—you can see in your mind's eye the kind if irregularities that would form an attractive picture,—which you can carry out in miniature. A lake never has an absolutely straight shore line,—there are points jutting out here and there which form little bays, these will probably have bullrushes, or iris or some sword-leaved or arrow-leaved plants for their adornment, and so we get two ideas from our imaginings, a curving "shore line" (as it were) and the wonderful effects to be had from contrasting leaf forms and habits of growth.

You can have a beautiful garden, restful in the extreme, with but few flowers in bloom at any one time in it, if—and I must acknowledge it is a big "if"—you study the growth, form, texture and coloring of your shrubs and plants, so as to make the straight lines (it may be) of one, enhance the beautiful curves of another. For example, take the tall sword-shaped grey-green leaves of the water flag (*Iris pseudacorus*) grown near the beautiful arching leaves of richest green, of the lemon lily (or any other Hemerocallis) and observe the result; again, note how the dark, glossy deeply-cleft leaves of Fischer's monkshood (*Aconitum Fischeri*) act as a foil to the light green, much grooved leaves of the white day lily, (*Funkia subcordata* var. *grandiflora*); and still again notice the dainty beauty of the fine stemmed, cleanly cut, crimson-tinted leaves of the barrenwort overhanging a velvety grey carpet of mouse-ear chickweed (*Cerastium tomentosum*). And so it is with shrubs and trees. The somewhat gushing gracefulness of Van Houtte's spirea suggests companionship with the stronger, more reticent lilac—the one we can fancy talks, while the other listens quietly.

If you are the happy possessor of a large lot, there are endless possibilities before you. You can indulge in shrubs to your heart's content, and have plenty of room for bold groups of tall stately plants, such as foxgloves, hollyhocks, delphiniums, plume poppies, giant daisies, boltonias, heleniums, sunflowers, and so forth, which with vines and shrubs form a background for things of shorter growth such as peonies, iris, phloxes, campanulas, spireas, etc., down to dwarf plants like the polyanthus, primrose and daisy.

No border can be perfect without a plentiful supply of prostrate plants to carpet the ground. The earth itself is not particularly beautiful, therefore the less seen of it the better and if you put small plants of the white rock cress (*Arabis albida*), both double and single, golden-tuft (*Alyssum sexatile*), white moss pink (*Phlox subulata alba*), lovely phlox (*P. amoera*), a lovely rose color, *Veronica prostrata*, sky blue, mouse-ear chickweed and the moss-like compact variety of cerastium (*C. arvense compactum*) white, alpine catchfly (*Silene alpestris*), white maiden pink (*Dianthus deltoides*),

*A portion of a paper read at the convention of the Ontario Horticultural Association in Toronto last month.

The Arrangement of Beds in Assiniboine Park, Winnipeg.—A Plan for Planting on a Large Scale
This park was designed by Mr. Todd, and its superintendent is Mr. George Champion.

magenta crimson, purple rock cress, of which there are many shades, chiefly of purple and lavender, soapwort (*Saponaria ocymoides*) pink—all these, with various stonecrops (Sedums) and houseleeks (Sempervivums), and sandworts (Arenarias) for very dry sunny spots, will give you a carpet of lovely flowers, and scarcely less lovely foliage. In addition to their beauty they can be relied on for keeping the roots of such plants as need mulching, from drying out, if planted close enough to them, and borders so covered need but little watering.

These same plants, if you want to have a "rock garden" will clothe the stones with beauty, for they are rock plants by nature, and there are a host of other charming dwarf plants which will only thrive under such conditions. Rock gardens need great care in the making and before attempting one, I would advise reading up thoroughly on the subject.

A straight wide path leading from one part of the garden to another might be made most attractive by building a pergola over it. In England, they are chiefly covered with roses, though occasionally other vines are used; here, it would no doubt be wiser to have clematis or other hardy vines, as well as a rose at each pillar, if we wanted it well covered, or grape vines alone would cover it well, and be both ornamental and useful.

Another fascinating adjunct to a garden is a pond, with bullrushes, iris and arrowheads growing on its farthest side and rounding one end, and water lilies floating about in the centre. Do not make the mistake of placing your pond in a conspicuous spot in the middle of the lawn—rather put it down towards the end of your lot and let shrubs screen it slightly, so that as you walk towards it you only see a glint of the water through the leaves. So situated, your friends will come upon it almost as a surprise—a little reserve in gardens is as necessary as in people. We soon tire of those in which we can see at a glance all there is in them. Ponds also require special care in the making.

What Amateurs Can Do in December

FLOWERING and ornamental plants make excellent Christmas gifts. Jerusalem cherries, genistas, cyclamen, potted bulbs, primulas, azaleas, rubber plants, araucarias, poinsettias, screw pines, Baby Rambler roses and Gloire de Lorraine begonias are some of the kinds, that may be selected. Place your orders with the florists early this month so that good specimens may be reserved for you. Should you have any of these plants grown by yourself, so much the better as they will be more appreciated when this fact is known by the recipient.

Books on gardening or fruit growing also make acceptable gifts. There are many to choose from. Send to THE CANADIAN HORTICULTURIST for our book catalogue. Why not give to your horticultural friends, one or two year's subscriptions to THE CANADIAN HORTICULTURIST? No gift would be more appreciated, and it would serve as a monthly reminder of the donor's good wishes.

THE WINDOW GARDEN

Perhaps you are growing some bulbs for Christmas gifts. If so, give them constant attention so that they may give satisfaction. Keep them well watered, and not too warm. They delight in plenty of sunlight but the roots should be kept cool.

House plants should not be kept in an atmosphere that is too dry. Moist air and judicious watering at the roots are necessary. Cacti, century plants, hydrangeas and oleanders do not require much watering.

Geraniums, lantanas, heliotropes and all light-loving plants should be kept in the south window. Begonias and other plants that do best in sunlight only in the forenoon may be placed in the east window. When plants are grown in a western exposure, which usually gives too much heat, the temperature may be diminished by means of a curtain of thin muslin. Ferns, palms, aspidistras, rubber plants, lycopodiums, tradescantias and plants of like nature, will grow successfully in a north window.

Avoid drafts of cold air on plants as they check the growth and often induce attacks of mildew. Ventilate on mild, warm days.

When repotting plants, place them in pots only one or two sizes larger than the ones in which they have been growing. It is a common mistake to use pots that are much too large.

Newly-potted plants should be watered once and thoroughly as soon as potted. Do not repeat until the soil shows signs of dryness.

SOME WORK OUTDOORS

Cover the bulb beds if they have not been mulched already. Use strawy manure, spruce bows, leaves held in place by brush, or anything that will serve to hold back freezing in fall and prevent alternate thawing and freezing in the spring.

Protect the tender and half hardy perennials. Mulch the lily beds, especially the Japanese varieties.

Make a compost of the fallen leaves. It will come in useful next spring. Saw dead limbs from trees. Wrap and protect tender vines and shrubs. Lay down climbing roses that are not too old and mulch the hybrid perpetuals with strawy manure. Mulch the strawberry bed. Remove and burn garden rubbish. Clean garden tools that will not be used again this season and cover the iron work with grease to keep it from rusting. Prepare for winter.

Make a plan for next year's garden.

Enquirers who sign "subscriber," "reader," and so forth, must send name and address before their questions can be answered in these columns.

If you have learned something new about gardening during the past summer give others the benefit of your experience by telling about it in a letter for publication in THE CANADIAN HORTICULTURIST.

Ontario Vegetable Growers' Convention

IN opening the fifth annual convention of the Ontario Vegetable Growers' Association, that was held in Toronto on November 11th, the president, Mr. T. Delworth, Weston, in his address, dwelt on the importance of getting the best seed possible, and on the difficulties in securing the same. He said that in the United States, there has been considerable agitation in the direction of controlling the purity of seed, but there are difficulties in the way of getting satisfactory legislation. In reference to the testing of onion seed, the speaker stated that with one exception, California grown seed is the best. The exception was in Essex county, Ont., where the season was the longest. The president spoke of methods of marketing in vogue in parts of the United States which might be copied to some extent here so as to return our growers a greater profit instead of the middleman securing all the advantages.

President Delworth

The report of the secretary-treasurer, Mr. J. Lockie Wilson, dwelt on the prosperous year that the association has experienced. The branches are increasing their membership, Kingston showing 125 per cent. of increase; London, 110 per cent., and Sarnia, 76 per cent. Strong new branches have been organized at Woodstock, St. Thomas and Dunnville. In the prize competition for the largest comparative percentage of increase in membership during 1908, London stood first and Sarnia second. Similar prizes are offered this year. Prizes to the amount of $35.00 are being offered at the Ontario Horticultural Exhibition by the Association for canned vegetables in quart sealers to be competed for by wives and daughters of the members. The finances of the association are in a satisfactory condition.

CABBAGE AND CAULIFLOWER GROWING

Mr. A. McMeans, O. A. C., Guelph, made a report on his investigation on cabbage and cauliflower growing in the United States. The average price to growers the past few years, who have not contracted, was $5.50 a ton. Owing to the bad season this year the price went up to $40.00 a ton. Planting is done with a special machine, two boys planting alternately; the machine waters the place where the plants are planted and then covers the wet spot with dry earth.

The large growers in the United States reduce expenses by conveniences in storage and shipping. Where possible, railway sidings are run alongside storage buildings. Shrinkage in cabbage stored is as much as twenty-five per cent. up to April 1st. The wetter the season of growth, the greater the shrinkage. In the shelf method of storage, cabbages are put one deep, stump down, in rack. A large quantity of cabbage is used in the manufacture of sauer-kraut, the consumption of which is not confined to the German element. At Saginaw, the average crop is ten to twelve tons an acre, and prices from $6.00 to $10.00.

THE JORDAN STATION

A report on vegetable growing at the Jordan Experimental Station was made by Mr. H. S. Peart, the director. There was a number of varieties and fertilizers tested including varieties of corn, squash, melons, carrots, beets, tomatoes and potatoes. Over 4,000 cross-bred tomatoes were fruited and two at least give promise of future usefulness. Fertilizers caused a decided increase in yield of tomatoes and cabbage, where a complete fertilizer was used. In potatoes no decided results were evident. In corn, potash and phosphoric acid gave largest yield of ear. For onions, potash gave best and heaviest bulbs.

FORCING VEGETABLES

Mr. W. C. Waid, New Carlisle, Ohio, gave an address on "Greenhouse Growing of Vegetables." Development in this line has taken place during the last twenty-five years. As a rule, vegetable growing under glass has been remunerative. Mostly lettuce, cucumbers and tomatoes are thus grown. An increase in the number of the vegetables forced is probable.

The soil in the forcing houses is seldom renewed, but well-rotted manure is added each year. The speaker spreads manure over the soil and uses a sprinkler system of watering in order to extract the fertility for the use of the plants. Sterilizing the soil is sometimes necessary when disease has been present the previous season. The overhead system of watering is the best, but sub-irrigation has given good results with lettuce and radishes. The higher the temperature, other things being equal, the more rapid the growth, but the greater the risk of disease. Good ventilation is a requisite.

ADDRESS BY SEED COMMISSIONER

Mr. G. H. Clark, Seed Commissioner, Ottawa, gave an interesting address on matters relating to seeds in Europe and Great Britain, prefacing his remarks with a resume of the work done at Ottawa in connection with seeds. Already many of the evils in connection with clover and grass seeds have been remedied by legislation as a result of the work It is a hard thing to control the seed question so long as seeds are brought in from abroad. When home-grown seed is used exclusively, then control will become possible.

The reports of the inspectors of the experimental plots were put in. In many sections the late spring prevented the results being conclusive. In Toronto and Ojibway sections, the crops were the best. The English-grown seed did not give satisfactory returns in many districts. California-grown seed seemed to be the best.

Mr. C. W. Baker, Byron, made suggestions as to the best method of increasing membership and furthering the interests of the association. Enthusiasm is needed in the individual to get out and secure members. The vegetable grower must be intelligent and up-to-date, and he can be helped by joining the association and the increased membership helps the association and gives it weight, as for instance, when approaching the government on tariff matters. The membership can and should be doubled. The speaker mentioned how in his branch they had secured reduced prices on boxes, crates, etc., on account of having a good membership. Advertise the meetings well. The newspapers are always ready to aid. Socials and picnics also help.

POTATO CULTURE

"Potato Culture, with Special Reference to Using Seed of Strong Vitality," was the subject of an excellent address by Mr. W. T. Macoun of the Central Experimental Farm, Ottawa. In a test at Ottawa with home seed and with seed from Nappan, N. S., the latter yielded five times as much and more per acre. In England, seed from the south of England yielded less than seed from Scotland or Ireland. The reason is that the farther north the tubers are grown, maturity is not so hurried and the potato has more time to develop. Immature potato seed yielded more than seed from matured. Immature potatoes must not be confounded with prematurely ripe ones. Immature ones are those whose tops may have been cut off by frost before being ripened. This address will be reported at greater length in a later issue.

A MESSAGE FROM QUEBEC

Mr. Emile Planto, a representative of the Quebec Department of Agriculture, expressed his pleasure at being present. He had learned much at these meetings. It is through education that progress is made in agriculture and he was in thorough sympathy with the idea of educating the children in agricultural subjects.

SMALL FRUITS

"Small Fruits in Connection with Vegetable Growing," was ably dwelt on by Mr. W. C. McCalla, St. Catharines. In a bad season a variety of crops is desirable, because loss is minimised; if one fails, another succeeds. There is room for development of local small fruit markets. The market gar-

dener, who is an intensive grower, is the fittest man to grow small fruits.

GARDEN INSECTS

Mr. C. W. Nash's address on "Insects that Affect Market Gardens," was very interesting and instructive. He stated that Toronto is the breeding ground of scale insects and other injurious pests. The worst class of insect pests are those below the surface of the ground. Cutworms do an immense lot of harm. They are hatched from eggs laid by small moths. The white grub also does great mischief. They come from eggs of the June bug or May beetle. The larva stays in the ground for two years. The rose beetle is another injurious insect, as is the striped cucumber beetle. It is difficult to destroy these underground insects. By driving holes into the ground with a blunt stick and pouring into them bisulphide of carbon, which is heavier than air, and works down, they can be killed. For cutworms, take bran, mix with molasses and water, and to every fifty parts put one part of Paris green, and drop the mixture along the rows in the infected bed. They prefer this to green food. Two varieties of stem borers give trouble.

Insects that attack foliage are countless. Some suck, others bite. Among the former are green plant lice. To kill them use whale oil soap, or even common soap. This closes the spiracles through which they breathe. Do not use kerosene emulsion. Continual use of this injures the plant owing to the mineral oil in it. Larvæ of onion or cabbage fly are killed by cultivating the ground and using soap along rows. The radish fly is troublesome. Dust them with fine wood ashes early in the morning. Insects which feed with jaws, as potato bugs and larvæ of white cabbage butterly can be killed with arsenate of lead sprayed on, and there is no danger of burning the foliage with the poison. Use two pounds to fifty gallons of water. As an alternative, use four ounces pyrethrum to one pound of phenyle powder.

The slug is destroyed by dusting over the ground while they are feeding, or early in morning, with salt or quicklime. For wireworms dress the ground with kainit or nitrate of soda, and rotate crops as frequently as possible. For asparagus beetle spray with arsenate of lead.

THE MINISTER OF AGRICULTURE

At the evening session an address was given by Hon. James S. Duff, Minister of Agriculture, who received a splendid reception. In his remarks he dwelt on the importance of conventions where vegetable growers can come together and discuss the work of the year with benefit to all concerned. He referred to the excellent reports sent out by the department in recent years, which have been in such demand, and thought that copies of these should be sent to teachers in the public and separate schools in the province to help to instruct the children in the various phases of agriculture, and thus cultivate a love for it.

Mr. W. C. McCalla, St. Catharines, in moving a vote of thanks to the Minister, said that he made it his business to have these agricultural reports in the library of the public schools of which he was school trustee, where they were greatly valued.

General Collections of Vegetables at the Ontario Horticultural Exhibition

In these collections there were some specimen vegetables that were perfect. It is regrettable that more growers did not enter the competition. There should be at least one dozen entries in this section instead of three as was the case this year.

Soil for Ginseng

What kind of soil is best for ginseng? How should the roots he planted?—T.M.A., St. John, N.B.

A rich deep and mellow loam is the ideal soil for ginseng. If the ground is a heavy clay, it may be used by spreading an inch of sharp sand over it a few times and mixing the sand well through the clay; such soils are generally rich and the sand gives it a mellow, loose texture. If the soil is of light, sandy nature but deep, put on a liberal supply of well rotted manure and swamp muck and mix this well with the soil. Good drainage and thorough preparation of the beds also are of the utmost importance. The ground must remain for four or five years without any further cultivation or until the roots are dug for market. The bud or crown of the roots should be about two inches below the surface. The root grows to a length of five to eight inches and some of the feeding rootlets penetrate to a depth of ten inches or more. This shows the necessity of making the ground rich all through.—Wm. Gilgore.

Preparing Land for Trees

J. O. Duke, Ruthven, Ont.

I always begin to prepare the land for planting an orchard of peach trees the year before the trees are set, by planting the field to some hoe crop, usually corn or tobacco, plowing deeply, and giving very thorough cultivation. No grass or weeds should be allowed to be in the soil in the fall.

In the spring, I always plant the trees before plowing the field. I strike out the tree rows one way with a plow, throwing a good furrow each way, when very little digging will be required to make a hole large enough for any tree. As soon as the trees are set and a little earth well firmed around the roots, I plow two furrows around each row with one horse and complete the lands with a two-horse team.

As soon as possible and before the soil has an opportunity to dry out, I cultivate with one horse cultivator close to trees and drag the avenues both ways with harrows, and I have very little trouble in making even the poor stock we sometimes get from nurserymen grow and do well.

The stock I got last year was exceptionally poor. I would not have planted it at all, but the nurseryman had my money, so I set the trees giving them the same care I would have had they been the quality I ordered, and though it was many weeks before many of them showed signs of life, I found on looking them over that I have lost very few.

Make the garden pay better next year.

The Canadian Horticulturist

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PETERBORO, ONTARIO

The Only Horticultural Magazine in the Dominion

OFFICIAL ORGAN OF BRITISH COLUMBIA, ONTARIO QUEBEC, NEW BRUNSWICK AND PRINCE EDWARD ISLAND FRUIT GROWERS' ASSOCIATIONS

H. BRONSON COWAN, Managing Director

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CIRCULATION STATEMENT.

Since the subscription price of The Canadian Horticulturist was reduced from $1.00 to 60 cents a year, the circulation has grown rapidly. The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with Dec., 1908. The figures given are exclusive of samples and spoiled copies, and of papers sent to advertisers. Some months, including the sample copies, from 10,000 to 12,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruit, flowers or vegetables.

January, 1908	7,650	January, 1909	9,456
February, 1908	7,824	February, 1909	9,310
March, 1908	8,056	March, 1909	9,405
April, 1908	8,250	April, 1909	9,482
May, 1908	8,573	May, 1909	9,172
June, 1908	8,840	June, 1909	8,891
July, 1908	9,015	July, 1909	8,447
August, 1908	9,070	August, 1909	8,570
September, 1908	9,121	September, 1909	8,605
October, 1908	9,215	October, 1909	8,675
November, 1908	9,323	November, 1909	8,750
December, 1908	9,400		
Total for the year	104,337		

Average each issue in 1907, 6,627
Average each issue in 1908, 8,695
(Increased circulation in one year 2,068)

Sworn detailed statements will be mailed upon application.

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We want the readers of The Canadian Horticulturist to feel that they can deal with our advertisers with our assurance of the advertisers' reliability. We try to admit to our columns only the most reliable advertisers. Should any subscriber, therefore, have good cause to be dissatisfied with the treatment he receives from any of our advertisers, we will look into the matter and investigate the circumstances fully. Should we find reason, even in the slightest degree, we will discontinue immediately the publication of their advertisements in The Horticulturist. Should the circumstances warrant, we will expose them through the columns of the paper. Thus, we will not only protect our readers, but our reputable advertisers as well. All that is necessary to entitle you to the benefits of this Protective Policy is that you include in all your letters to advertisers the words, "I saw your ad. in The Canadian Horticulturist." Complaints should be made to us as soon as possible after reason for dissatisfaction has been found.

Communications should be addressed:

THE CANADIAN HORTICULTURIST,
PETERBORO, ONTARIO.

EDITORIAL

THE SOCIETIES' GRANT

At the convention of the Ontario Horticultural Association, a resolution asking the government to increase the grant to horticultural societies by $5,000 was passed unanimously. There is urgent need that this resolution meets the favor of the government. The organization of new societies at Oshawa, Whitby, Vankleek Hill, Milton and elsewhere has tended to decrease the amount available for the other societies and the applications from Fort William, Port Arthur, Springbrook and other places for the organization of horticultural societies, indicates that more societies will be organized and that the grants available for the old societies will be reduced still further.

No better work is done by any organization for the general uplift of the province than that performed by our horticultural societies. Their request for an increase of $5,000 in the grant should be recognized at the coming session of the Legislature by a full compliance with same. The horticultural societies need the money and will use it in a manner that will benefit the province at large.

QUEEN VICTORIA PARK

Following his reference to Queen Victoria Park at the convention of the Ontario Horticultural Association, Major H. J. Snelgrove, the late president, was invited by Chairman Langmuir of the Park Commissioners to attend a meeting of the Board in Toronto on November 19th and furnish the commissioners with such information as he possessed. This invitation indicates that the park commissioners are awakening to their responsibilities and that necessary reforms in the management of the park may be made. It will be gratifying to the public to learn that this is the case. Many times during the past year or more, attention has been drawn in these columns to the incompetence of the park management. The words of the ex-president confirmed our stand. He deserves credit for bringing the matter so forcibly to the attention of the public and of the park commissioners.

Major Snelgrove did not accept the invitation of the park commissioners and in this we believe that he acted wisely. Instead, he reiterated in reply his statements at the convention and intimated his willingness to appear before a board of investigation should such be appointed. Had Major Snelgrove complied with the request of the commissioners, he would have been placed in an impossible position. When rumors of park management in Toronto were rife, what chance would one man have had in substantiating them before the committee of the city council responsible for the management of the parks? Such an investigation would have been farcical. Instead, scores of witnesses were called to give evidence before competent and impartial judges, and the charges were proved. The situation regarding Queen Victoria Park is analagous. If an investigation is to be made, it should be conducted by judges, unprejudiced and disinterested, with power to summon as many witnesses as are necessary to a full understanding of the situation. An investigation of this nature should not be necessary. Now that the park commissioners themselves have asserted a desire to see an improvement, it should not be difficult for them to investigate the charges of incompetence that have been made and to institute the needed reforms. The people of Ontario look to them for a change.

At the convention of the Ontario Fruit Growers' Association the pillaging of fruit by employees of express companies was condemned in vigorous terms. This is a practice that is becoming altogether too common. It is a disgrace. Many growers present told of specific cases. It is the duty of the officials of the express companies to use means, including "spotters," to locate the culprits. A term in prison for those found guilty would teach a well-earned lesson and show the companies' employees that pillaging fruit is stealing and will not be tolerated.

At the Ontario Horticultural Exhibition, visiting fruit growers showed keenest interest in the exhibits of fruit packed in boxes and barrels. Some of the judges were kept busy answering questions on best methods of packing and on why one pack and package received awards over the others. Special credit is due to Mr. P. J. Carey, Dominion Fruit Inspector, for his kindness in this matter. For next year's and future shows we would suggest that the exhibition management arrange for one or more experts to be on hand during certain hours of each day after the judging is completed to make such explanations and that such be announced by placards and at the fruit growers' convention. More can be learned in short time by giving reasons for placing awards than by most any other way.

Much dissatisfaction was expressed by visitors to Toronto during horticultural week at the over-lapping of conventions. The convention of the Ontario Horticultural Association over-lapped that of the Ontario Fruit Growers' Association, the latter, that of the Ontario Vegetable Growers' Association. The officials in charge of the arrangements know this difficulty and would change matters if it were possible. One difficulty lies in the desire of each association to hold its convention as early in the week as possible. It is impossible to get a satisfactory attendance on Monday, on account not only of the distance that some delegates live from Toronto but because the cheap railway rates cannot be secured for that day. Saturday is "going home" day and few care to remain even until Friday. It is regrettable that the over-lapping occurs, but it is unavoidable. The interests of the majority must be considered.

PUBLISHERS' DESK

The national character of THE CANADIAN HORTICULTURIST makes it necessary for us to proportion the space allotted in each issue to the various provinces in accordance with our circulation in each of them. Some of our readers imagine that we should confine practically all the space in this magazine to the interests of the province in which they reside. Occasionally a friend in Nova Scotia will tell us that we are not giving enough consideration to the horticulture of that province. Words of similar nature come sometimes from British Columbia, as is indicated by the following from a gentleman on Vancouver Island, who said, when sending his subscription: "I dropped my subscription before only because your paper is for eastern Canada." About the same

time a letter was received from Ottawa which said: "People in this locality complain that your paper is prepared for Nova Scotia, Prince Edward Island and British Columbia and that Ontario is a back number."

We aim, through THE CANADIAN HORTICULTURIST to help every fruit and vegetable grower and flower lover too, in every province across our broad country. If some issues appear to favor one province more than another, circumstances usually will acquit us of any attempt at partiality; as, for instance, this issue which chronicles the most important events in horticulture that occurred during the past month and they happen all to have been centred in Ontario. Our January issue will, in addition to matters of general interest, record the proceedings of fruit conventions in Quebec and maritime provinces; the February number will give special attention to British Columbia on account of its fruit conventions; and so it goes.

THE CANADIAN HORTICULTUAIST alone gives the horticultural public of Canada particulars of Canadian doings, Canadian practices, Canadian news, Canadian markets and so forth along with the most interesting happenings everywhere. Its subscribers get value many times the investment. While occasional letters like those quoted are received, most of our readers know that THE CANADIAN HORTICULTURIST is the only publication of its kind in Canada that can and does furnish reliable and up-to-date news and information for all the provinces.

Frequently we are asked why we do not publish more horticultural society news and reports of local meetings. Briefly the answer is that we have not the space. We receive many reports from local horticultural societies and copies of local papers containing similar information. These are much appreciated as they keep us informed on the doings of the societies but in a monthly publication whose scope is national there is not room for the publication of all of them and, as we do not wish to discriminate, we must confine publication only to those features of the work that are new and of general interest. If space were available we would gladly publish lists of officers and other items of local interest but a little thought on the part of our friends will show that such is impossible. For instance, were we to publish the reports of all annual meetings held last month one entire issue of THE CANADIAN HORTICULTURIST would be required to hold them. Furthermore, these reports for the most part, are of only local interest and they are published in the local papers. For these reasons THE CANADIAN HORTICULTURIST finds it necessary to feature news of greater general interest to all its readers If any of the local organizations feel that they have been slighted through the non-publication of their reports we hope that they will consider our position and accept this explanation.

During the week of the conventions and exhibition in Toronto, Mr. D. Johnson, president of the Co-operative Fruit Growers of Ontario and manager of the Forest Fruit Growers' and Forwarding Association, in company with others interested in the development of the fruit industry of Lambton county, asked the Hon. J. S. Duff, Minister of Agriculture to send a demonstrator to that district to give instruction in the growing of peaches. Mr. Johnson said that there is a good future for peach culture in that locality. Curl leaf that did so much damage in the past can now be controlled.

The Ontario Horticultural Exhibition

THE Ontario Horticultural Exhibition has shown steady growth each year since its inception. The show held last month in Toronto was no exception. There were 2336 entries in the fruit sections alone. These comprised apples in boxes, 321; apples in barrels, 137; apples in pyramids, 97; apples in plates, 1288; pears in plates, 146; pears in boxes, 57; grapes in plates, 46; grapes in boxes, 15; grapes in packages, 9; peaches, total number of exhibits, 45; fruit in jars, 175. There was a noticeable increase in boxes, barrels and pyramids.

In box packing of fruits there was a marked advancement shown over last year and all previous years. The character and finish of the boxes indicated that this factor is rapidly nearing perfection in this province. Faulty packing was in the minority. A few boxes were slack, some contained fruit not properly graded, a few contained too much tissue-paper, but on the whole they showed the greatest advancement in packing methods that has yet been seen at an exhibition in Ontario. It was noticed that those boxes that contained what is known as a "solid pack" contained also the most bruised fruit. In some cases apples had their sides torn off by the edges of the box when they would have been uninjured had a diagonal or some other kind of pack been used. The barrel exhibits were fine. Prominent among the winners in boxes and barrels were the Norfolk, Chatham, Oshawa, Newcastle, Burlington and St. Catharines associations. Many individuals had exhibits equally as good but space will not permit mention of their names.

The first prize for best display of fruits in commercial packages was won by the St. Catharines Cold Storage & Forwarding Company for a well packed lot of well grown apples, pears, peaches and grapes. Second prize in this section went to the Grantham Fruit Growers' Association and third to the Norfolk Fruit Growers' Association. The St. Catharines Cold Storage Company also won first for best display of fruits not in commercial packages; 2nd, Norfolk; 3rd, Grantham. The first award for display of apples not in commercial packages and exhibited by a society or an association in semi-northern counties went to the East Simcoe Agricultural Society.

The St. Lawrence Experiment Station at Maitland, of which Mr. Harold Jones is director, made an excellent display of the varieties grown there. A striking feature of this display were the large, perfect, highly-colored specimens of Fameuse which Mr. Jones is developing through propagating from a bearing tree in his orchard that produces a superior strain of that variety. Lake Huron Experiment Station, at Walkerton, through its director, Mr. A. E. Sherrington, put up a large and attractive exhibit of fruits in the fresh state and in bottles.

The county exhibits were very attractive. Leeds and Grenville had an exceptionally fine display of large, clean, highly colored fruit. It was staged by Mr. Harold Jones, who also won a number of prizes. Halton and Huron counties had some high-class fruit on display. Among the prize winners were noticed the names of A. W. Peart, C. A. Bennett, A. Riach, in Halton and J. W. Edgar, K. Cameron, Geo. Fothergill & Son and others in Huron. There was some equally good stuff shown in the exhibits from Brant and York counties.

Some of the Best Apples at the Ontario Horticultural Exhibition were seen in this Display

Display of St. Lawrence Experimental Fruit Station in foreground and of Leeds-Grenville counties in background on same table. Both these exhibits were collected and arranged by Mr. Harold Jones, Maitland.

The Norfolk Fruit Growers' Association had a large number of entries in the competitive classes and also put up the most striking exhibit of the exhibition. This grand display of Norfolk fruit attracted much attention and will prove an excellent advertisement for that district. Northumberland and Durham also had a fine display of about 40 or 50 varieties of apples. Exhibits of this nature, with the names of the districts standing out prominently amply repay the trouble and expense connected wth them.

The large increase in number of pyramids was most commendable. This aided in making the whole exhibition more attractive. The quality of fruit in most of the pyramids this year was high class. Something should be said in the prize list, however, to distinguish between quality of fruit and attractiveness for guidance in judging. Some pyramids contained fruit of the best quality but were not constructed properly, while others that were very attractive contained fruit of poor quality. Cases of this kind were difficult to judge. A word in particular should be said respecting the superior

quality of the Ontarios in these pyramids. Mr. W. H. Dempsey, Trenton, won 1st prize in this section.

The specimen apples of standard varieties for which first prize of $10 and second prizes of $5 were offered, were the subjects of much interest and comment. For most perfect Baldwin, first prize went to Norfolk F.G.A., and second to Robert Thompson, St. Catharines. Greening:—1st, C. W. Challand, Marburg; 2nd, R. T. Michael, Brooklin; King:—1st, C. W. Challand; 2nd, W. C. Parker, Humber Bay. McIntosh:—1st, John McDonald, Cornwall; 2nd, W. M. Robson, Lindsay. Spy:—1st, W. C. Oughtred, Clarkson; 2nd, R. T. Michael. Some of the best apples in these sections were ruled out because they measured one thirty-second of an inch or more over the diameter required by the prize list. Undoubtedly the best McIntosh was ruled out on this account. The same may be said also of Kings. We are informed that the size limitations will be changed for next show.

Only passing mention can be made of the pears, apples, grapes and peaches on plates. The samples mostly were of the best. Prominent among winners in apples were H. Jones, Maitland; C. L. Stevens, Orillia; W. C. Parker, Humber Bay; Fred Dean, Port Dover; J. B. Guthrie, Dixie; Brown Bros., Humber Bay; W. G. Watson, Dixie; Norfolk F.G.A.; John D. McDonald, Cornwall; and others. Among the winners in pears were, Norfolk F.G.A.; A. M. Smith, Port Dalhousie; R. Thompson, St. Catharines; W. H. Bunting, St. Catharines. Among the winners in grapes were R. Thompson, W. H. Bunting, F. G. Stewart, Homer. Mr. W. M. Robson of Lindsay, was successful in winning 1st on Agawam, and some other prizes. A large number of entries in preserved fruits and in honey attracted much attention.

The Ontario Agricultural College had an exhibit of much educational value. Chrysanthemums, fruit and specimen insects and diseases made up the display.

VEGETABLES

The vegetable department vied with the fruit in quality if not in quantity. The stuff mostly was perfect in variety type and well grown. First prize for best general collection of vegetables shown went to W. Harris; 2nd, Brown Bros.; 3rd, J. W. Rush, all of Humber Bay. All the vegetables were displayed to better advantage than in past years, but there is still room for improvement. The judge was Geo. Syne, Jr., Carlton West, Ont. The Essex station had an excellent general display.

FLOWERS AND PLANTS

The floral features of the exhibition were very fine. The cut chrysanthemums, carnations, roses and violets were as good as can be grown anywhere. The plant sections contained some fine specimens. First prize for best decorated dining table went to Geo. D. Manton, Eglinton; 2nd, Thos. Manton, Eglinton; 3rd, was divided between H. Wilshire and Wm. Jay & Son. For best group of chrysanthemums and feliage plants E. F. Collins won 1st, and W. Jay & Son 2nd. For best display of orchids, Thos. Manton won 1st, and E. F. Collins 2nd.

TRADE EXHIBITS

A number of our most prominent firms that handle commodities for the use of horticulturists were on hand with instructive and attractive exhibits Among them were the Niagara Brand Spray Co., of Burlington, Ont.; E. C. Brown sprayers, Rochester, N.Y.; Batts Limited, Toronto; Standard Chemical Co., Toronto.; Biggs Fruit and Produce Co., Burlington; Wm. Cooper & Nephews, Toronto; King Construction Co., Toronto; Grasselli Chemical Co., Cleveland, Ohio; Chemical Laberateries, Toronto; and Foster Pottery Co., Hamilton.

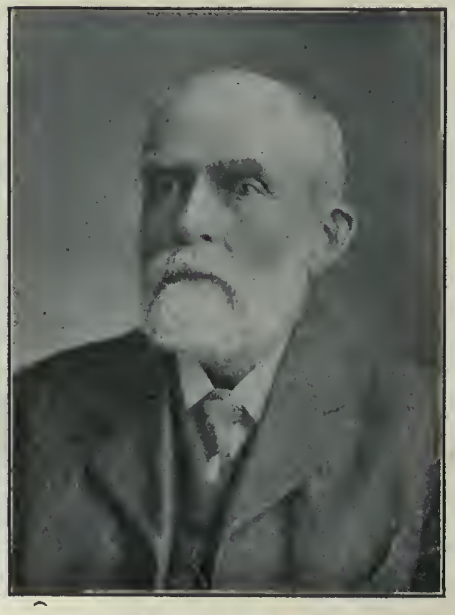
CORNELL EXHIBIT

An exhibit of much educational value was made by the Department of Plant Pathology, Cornell University. Illustrations and specimen fruits were shown to demonstrate the value of lime-sulphur as a summer spray for apple orchards. Niagara Brand was used in the experiments as the Niagara Sprayer Co., of Middleport, N.Y., has given a fellowship to Cornell University for investigation work in determining the worth of commercial lime-sulphur. It is understood in the agreement between this company and the university that results, good and bad, are to be published for the benefit of fruit growers.

The results the past season showed that the percentage of wormy apples was reduced from 25 per cent. on unsprayed trees to 3 per cent., where arsenate of lead was used with Bordeaux mixture, and to 1.2 per cent. where arsenate of lead was used with lime-sulphur. In the case of scab the difference was practically the same. The lime-sulphur was diluted one to thirty. It is known that under certain conditions, Bordeaux injury may result from the use of this fungicide. The moral, therefore, is to use lime-sulphur and be safe. This exhibit was in charge of Mr. Errett Wallace, of Cornell. More will be said about this fellowship and the work in a later issue.

Ontario F. G. A.---50th Anniversary

FIFTY years ago the Ontario Fruit Growers Association was organized in the city of Hamilton. Eighteen persons were present at the first meeting which was held on Jan 19, 1859. The only one of them now living is Mr. A. M. Smith of St. Catharines. At the 50th anniversary of the association which was celebrated in Toronto on Nov. 10 and 11, Mr. Smith was present and was presented with a purse of $175 as a slight token of appreciation and esteem and the following address was read:



Mr. A. M. Smith

A member of the Ontario Fruit Growers' Association for fifty years, and the only one now living of those who organized the Association. During the last half century great progress has been made in the fruit industry of the province. No person has had more to do with this progress than Mr. Smith. His business integrity and ability, his wide and exact knowledge of horticulture and his constant allegiance to the association which he helped to organize, were recognized by an illuminated address and a purse of gold presented to Mr. Smith at the recent fiftieth anniversary of the association held in Toronto. Mr. Smith is 77 years old, having been born on September 24, 1832.

"On this the 50th anniversary of the Fruit Growers' Association of Ontario, the members of 1909 desire to extend to you as the only living charter member, the warmest congratulations of the association. Together with Arnold, Dempsey, Woolverton and others, you were largely instrumental, not only in the organization, but subsequently in the maintenance and furtherance of the work of the association.

"As a pioneer fruit grower and nurseryman, you deserve credit for so faithfully spreading the propaganda for the planting of the splendid orchards now found everywhere throughout the province. These have given to Ontario her present enviable position as the premier fruit growing province of the Dominion, and the largest producer of export apples of any province or state on the continent. We feel that to you and your fellow members of 1859 there has been erected a lasting memorial in the millions of trees which yearly yield such handsome returns to the horticulturists of Ontario.

"As representing the commercial fruit growers of the province, the association wishes you continued success in your life occupation, and the best wishes of your fellow fruit growers will follow you in the future as in the past.—Signed on behalf of the Association: E. D. Smith, Winona, president; Jas. E. Johnson, Simcoe, vice-president; P. W. Hodgetts, Toronto, secretary-treasurer."

The address was read on behalf of the association by Mr. Murray Pettit, Winona, and the purse was presented by Mr. R. B. Whyte of Ottawa. Prof. John Craig of Cornell University and formerly of the Central Experimental Farm, Ottawa; Mr. E. D. Smith, Winona, president of the association this year and the chairman of the convention, Mr. Thos. Berriman, Niagara Falls, and others supplemented the address by personal words of regard and respect. The entire assembly expressed its approval of these things by great applause. In a few gracious words Mr. A. M. Smith expressed acknowledgment. Preceding this presentation and the accompanying addresses, Mr. Smith told the story of "Fifty Years of Peach Culture in Ontario." His remarks on this subject will appear in a later issue of THE CANADIAN HORTICULTURIST.

THE PRESIDENT'S ADDRESS

In an excellent address that reviewed the progress of fruit growing for 50 years, and chiefly during the past 35 years, President E. D. Smith stated that the time has come when laws that have to do with the control of orchard pests should be provincial in their enforcement rather than local. Compulsory legislation is necessary to compel the proper care of orchards. The future of apple growing lies in producing the largest quantity possible of perfect specimens. We have about 7,000,000 apple trees in the province. A school is needed to teach apple growers and packers how to pack apples. Short courses should be given in all fruit districts. Not only should packing methods be taught but also the identification and proper naming of varieties.

The president said that individual growers can produce fruit and sell it to as good advantage as can co-operative associations. Marketing is of equal importance to production. Selling by commission should be resorted to as little as possible. He pointed out that new varieties are wanted for cer-

tain seasons. Pears are wanted that will not blight and peaches and plums that will ship to the West. The speaker complimented the Dominion government on the work of its fruit inspectors in the Niagara district and complimented the G.T.R. and C.P.R. on their improved freight service to the West.

President E. D. Smith

PROPOSED LEGISLATION

A draft bill was placed before the association and passed that will repeal the present provincial acts that have to do with the control of yellows, black knot, and noxious insects. It is to be called the Fruit Pests Act, and is similar in form to the present San Jose Scale Act. The bill as carried by the association includes San Jose scale, codling moth, little peach, black knot, yellows, crown gall, pear blight and pear psylla. This bill differs from the San Jose Scale Act, besides the addition of other insects, only in requiring that "25 or more fruit growers," instead of "15 or more ratepayers," shall sign a petition for the appointment of inspectors to enforce the provisions of the Act. The government will be asked to have the proposed Act passed at the coming session of the legislature.

The Ontario government will be asked also to amend the Pharmacy Act so that white arsenic may be added to the list of poisons that may be handled by grocers and others outside of druggists and chemists. This is a commodity that is becoming largely used by fruit growers and it should be more easily purchased.

It was decided also to ask the Dominion government to pass an Act that will control the adulteration of chemicals used in the control of orchard and garden pests. The framing of the bill was left to a committee. The idea is to prevent the manufacture, sale or transportation of adulterated or misbranded fungicides, Paris green, lead arsenate and other insecticides and for regulating traffic therein.

ELECTION OF DIRECTORS

The directors elected for the various districts are as follows: 1, R. B. Whyte, Ottawa; 2, Harold Jones, Maitland; 3, F. S. Wallbridge, Belleville; 4, W. H. Gibson, Newcastle; 5, R. W. Grierson, Oshawa; 6, L. A. Hamilton, Lorne Park; 7, E. D. Smith, Winona; 8, A. Onslow, Niagara-on-the-lake; 9, J. E. Johnson, Simcoe; 10, J. L. Hilborn, Leamington; 11, F. Metcalfe, Blyth; 12, C. W. Gurney, Paris; 13, Adam Brown, Owen Sound.

COMMITTEE REPORTS

A report on now and promising fruits was made by Mr. W. T. Macoun, C.E.F., Ottawa. This report was illustrated by specimens of many of the varieties and seedlings mentioned. The report of the transportation committee was presented by Mr. W. H. Bunting, and that of the co-operative committee, by Mr. Jas. E. Johnson. These reports will appear in full in a later issue of THE CANADIAN HORTICULTURIST.

SMALL FRUIT CULTURE

The history of small fruit culture in Ontario during the past 50 years was told by Mr. A. W. Peart of Burlington. Fifty years ago there were few strawberries grown in Upper Canada and altogether only about 50 or 75 acres of small fruits. The speaker referred to some of the old varieties that have gone out of date. There is no part of the province where some varieties of small fruits cannot be grown. Mr. Peart reviewed the history of small fruit culture by periods of 10 years. The most recent decade has been marked by much progress. Canning and jam factories absorb thousands of cases. They consume one-third to one-half of the strawberries and raspberries grown in the province. Mr. Peart's estimated acreage in 1909 is: Strawberries, 4,500; raspberries, 2,000; blackberries, 1,000; currants, 1,000; gooseberries, 500; total 9,000 acres and a value of $3,150,000.

The following varieties were recommended by the speaker: Strawberries, Bederwood, Splendid, Warfield, Grenville, Williams, Sample, Saunders, Irene, Buster; red raspberries: Marlboro, Cuthbert, and probably Herbert; black raspberries: Hilborn, Older, Gregg, Smith's Giant; purple raspberries: Columbian, Shaffer; white raspberries: Golden Queen; red currants: Fay, Cherry, Pomona, Red Cross, Wilder; white currants: White Grape; black currants: Victoria, Champion, Lee, Naples, Saunders; blackberries: Agawam, Snyder, Kittatinny; gooseberries; Pearl, Downing, Red Jacket. The adaptability of some of these varieties is very local.

Secretary P. W. Hodgetts

"Many questions are pressing for solution," said Mr. Peart. "These include varieties best adapted to certain soils and localities; proper care, cultivation and pruning; how to dispose of injurious insects; lowering the cost of production; and finding

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good markets. The outlook is promising, however. Better systems of distribution, the increase in population and the advancing tide of immigration into the Northwest are creating a demand for our fruits, both fresh and canned, the potentialities of which are unlimited."

"The Over-planting of Strawberries and the Western Markets," was the subject of an address by Mr. Robert Thompson, St. Catharines. "Small Fruits in the Young Apple Orchard," was dealt with by Mr. L. A. Hamilton of Lorne Park. The former appears elsewhere in this issue. Mr. Hamilton's address will be published later.

CHERRIES

Mr. F. G. Stewart, Homer, discussed the subject "Sweet Cherries for South-western Ontario." He said that the soil for this fruit must be light and dry. The trees must be well cared for, particularly in the matter of spraying. Plenty of spraying material should be applied. Among the varieties recommended were Governor Wood, Alton, Napoleon Biggareau, Black Tartarian and Windsor. Mr. C. E. Bassett, Fennville, Mich., pointed out the absolute necessity for air drainage in the cherry orchard. He said that a free circulation of air will largely prevent fungous diseases.

In an address on "Cherries for the Commercial orchards of Ontario." Mr. A. E. Sherrington, Walkerton, said that sweet cherries are not a success in the northern parts of the province. Yellow Spanish is the most successful. To prevent rot in cherries the trees should be sprayed in the spring before any growth appears with three pounds of bluestone to 40 gallons of water, again with Bordeaux just before the bloom opens, repeat after the blossoms fall and again 10 days later. The soil should be warm, dry and sandy. The Morello class can be grown on well drained clay loams. On sandy soils the trees may be planted 20 feet apart and on clay loams 25 feet. In pruning direct the growth by pinching when young. Some varieties recommended by the speaker were: Early Richmond, if well cared for and fed, English Morello, profitable but the tree is short lived; Montmorency, best commercial variety; Olivet, satisfactory.

"Do Cherries Pay?" This question was answered by Mr. Sherrington with figures. At 25 feet apart there are 70 trees to the acre which should yield 8 to 10 baskets a tree at 8 to 10 years of age, or 560 baskets an acre. At a net price of 60 cents per 11 quart basket, this gives $336 to the acre. This shows that it is profitable to grow cherries of this class. Harvesting, the package and the market are the problems. Cherries can be shipped to the west successfully. They should be harvested when ripe, and when dry as they will then stand up much better. Three or four pickings should be made from a tree. The fruit should not be handled but picked by the stem, clipped or pulled. Mr. Sherrington pays 12 cents a basket for picking. He said that the 11-quart basket is not the best package for cherries. We require a smaller package or a box which should be flat.

GRAPES

"Is Grape Growing Profitable at Present Prices?" was discussed by Mr. Murray Pettit, Winona, who answered in the negative. He said that there is no profit in grapes when they sell below 13 cents a basket. The cost of producing an acre of grapes is as follows: Land, $125; 430 vines at 3 cents; $12.90; preparing land and planting, $8; 136 posts at 16 cents, $21.76; setting posts, at 15 cents, $6.80; 390 pounds of wire at 3 cents, $11.70; bracing end posts and stapling wire, $6; cultivating and pruning for three years, $30; this makes a total of $222.16; add to this interest, $33.32 and we have a grand total expense for the first three years of $255.48.

After the vine is established the cost of production on an acre according to Mr. Pettit is: Interest on investment, $12.74; pruning and tying, $6; cultivation, $8; spraying and fertilizing, $9; picking, packing and delivering, $13; baskets, $26; interest and repairs on machinery, $16; total, $90.99. Supposing the production were 750 baskets an acre and they sold at 10 cents each, or $75 an acre, the producer would sustain a loss of $15.99; if they sold at 11 cents he would lose $8.49; if at 12 cents, the loss would be 99 cents to the acre. Mr. Pettit reasoned, therefore, that grapes must sell at least for 13 cents to commence to pay profit. He said that the grower should have 15 cents for Concords and Niagaras, and 20 cents for Rogers, and that if they would co-operate they could get these prices. The fruit inspectors and the growers should be more careful in keeping poor stuff off the market.

An interesting discussion followed Mr. Pettit's address, most of the growers stating that Mr. Pettit's estimated cost of production was a little high. Mr. Fred Goring, St. David's, who has earlier soil and an earlier location said that he finds the cost of production much less than the figures given by Mr. Pettit and that his prices are better. Mr. Robt. Thompson claimed that grapes can be grown for one-half the cost mentioned. Mr. E. D. Smith also thought that Mr. Pettit's figures were a little high. He said the growers should not be discouraged because grapes sold at a loss towards the end of this season. Wine men have been off the market for two years. Unfermented

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wine will be made in the near future in this province, and will take one half of the crop. Mr. Smith expressed the opinion that co-operation in itself will not raise prices. He stated that there are no middle men in the business to-day except those absolutely necessary to the collection, distribution and sale of the crop.

The premature marketing of grapes came in for considerable discussion. Mr. Robt. Thompson said that it would work its own cure. The man who cuts early will get less money than if he had waited a little while. Prices will drop in two or three days and stay down. Mr. M. Pettit thought that it required more than education. He believed that legislation is necessary to prevent this kind of fraud. Mr. C. E. Bassett said that the matter is within the control of co-operative associations as far as their members are concerned. Such associations find that it does not pay and they will not open their cars early enough in the season for the reception of green grapes. Immature grapes at all seasons should be refused.

An interesting and instructive address was given by Mr. D. K. Falvay, Westfield, N.Y., on the subject "New York Grape Growing Methods." A portion of this address appears elsewhere in this issue and the remainder will be published later.

PEACHES

Pruning the peach was discussed by Messrs. J. W. Smith, Winona, and Wm. Armstrong, Queenston. The main features of this discussion will appear later with illustrations. A valuable address on "Practical Principles for Profitable Peach Production" was given by Mr. C. E. Bassett, Fennville, Mich. Soil and location, preparation of soil, varieties, cultivation, pruning, thinning, diseases, insects, fertilizers and cover crops were discussed by Mr. Bassett. This address will be reported in full in a later issue. Mr. J. L. Hilborn, of Leamington, told of the reverses that peach orcharding has met with in south-western Ontario and pointed out the possibilities of the future. This paper will appear in full in another issue.

PEARS

Pear growing methods in New York State were described by Mr. J. R. Cornell, Newburgh, N.Y. He said that cultivation and fertility are needed to produce fruit. Pruning should not be practised too severely. Under-prune rather than over-prune. Do not head back too much. Thin out. The worst enemy of the pear is the psylla. Whale oil soap will keep this in control. This paper will be reported at greater length in another issue.

"Profits in the Pear Orchard," was the subject of an address by Mr. W. F. W. Fisher, Burlington. This address will be reported in full later.

APPLES

In an address on the marketing of apples, Mr. R. J. Graham, Belleville, said that success depends upon finding profitable customers, upon making them permanent and upon establishing confidence. He said that there are too many varieties in the country. There are innumerable things to learn and to know about marketing apples. The ideal condition is to make it a matter between producer and consumer. Buyers and dealers are necessary in moving the crop. There is a splendid opportunity to popularize our apples in Great Britain. Though many thousands of barrels are exported only a small percentage of the population of the British Isles eats Canadian apples. Mr. Graham advocated the establishment of a system of selling by hand carts and hawkers. These could sell our apples in three grades—three pence, two pence and one penny a pound. If apples are treated properly and the supply is maintained continuously this could be done. According to Mr. Graham, the grower would get by this system $3.70 net a barrel.

In discussing the relative merits of boxes and barrels, Mr. Graham said that we must give the market what it wants both in package and in variety. Nothing should be packed below No. 2. There is a market for lower grades but they never should be packed and palmed off upon the public for anything better. Apples should be sold when they are wanted and not at any other time. No one should sell varieties that are out of season.

In an address on "Getting Together," Mr. Bassett elaborated upon the value of co-operation and of central packing houses. He said that it is a difficult thing to get good men at the head of these concerns and incidentally paid a high compliment to the worth and work of Mr. Robt. Thompson of the St. Catharines Cold Storage and Forwarding Company. Mr. Bassett said that a good man should be paid a good salary. Co-operative associations should not expect to secure a $10,000 man for $1,000. A capable man will return to the growers many thousands of dollars and, therefore, he should get a share of it. The organized grape growers of Lawton, Mich., received on the average this season 2¼ cents a basket for their grapes more than the price received by growers outside of the association. Co-operation saves also in the buying of supplies, including spraying materials and apparatus, baskets, fertilizers and so on. Mr. Bassett strongly advocated the establishment of co-operative fruit growers' as-

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sociations in all parts of Canada where they do not now exist.

A report on orchard survey work done during the past season in the apple orchards of the Lake Huron shore, was made by Mr. S. E. Todd, O.A.C., Guelph, who had charge of the work. Mr. Todd showed by charts that a large part of the district is admirably located for the production of fruit. He showed that most of Lambton county is farther south than the Niagara and Burlington fruit districts. Except a very small area, the whole section along the Lake Huron shore could be made into one large orchard. By charts and tables Mr. Todd showed that it pays to spray, fertilize, cultivate and to organize. He said that much educational work is needed in that district in respect to spraying and the control of orchard pests. Much of the nursery stock there is very good but the substitution of varieties is complained of by many of the planters.

MISCELLANEOUS

Space in this issue will not permit mention in detail of the remaining addresses. Mr. J. A. Ruddick's address on "Cold Storage of Apples and other Fruits," appears as the leading article of this issue. An exceedingly interesting talk on orcharding on the Pacific coast illustrated by limelight views, was given by Prof. John Craig, of Cornell University, at the concluding session which was presided over by the Hon. J. S. Duff, Minister of Agriculture. At this session an address was given by Mr. C. C. James, the Deputy Minister.

Earlier in the proceedings were addresses on "Spraying 10 Acres of Apples: Cost, Equipment and Results," by M. C. Smith, Burlington; on "Lime-sulphur vs. Bordeaux for Summer Spraying of Apple and Pear Orchards," by Mr. L. Caesar, O.A.C., Guelph; and on "Pointers from the West," by Mr. J. W. Crow, O.A.C., Guelph. These addresses will appear in part or in full in subsequent issues. Pointers from Mr. W. T. Macoun's address on "Uniformity in Judging Systems for Eastern Canada," appear on another page.

Entomological Society

The 46th annual meeting of the Entomological Society of Canada was held at Guelph on Nov. 4 and 5. The meeting throughout was characterised by the many good papers that were presented. As space is limited, only a few of the papers can be referred to in this issue.

Mr. L. Caesar, in his address, dealt principally with the white pine borer, which appears to be fairly abundant in the old Niagara district and also with the plum curculio and its relation to the fall attacks on apples.

Mr. McArthur Gibson read an extract from his annual report, relating to the prevalence of the brown-tail moth in French importations of nursery stock. The prompt action of the Dominion government in stamping out so quickly this pest, which is causing so much consternation in the States of Maine and Massachusetts, is highly to be commended.

An interesting and instructive address was given by Dr. Gordon Hewitt, the Dominion entomologist, recently appointed from England to take the place of the late lamented Dr. Fletcher. Dr. Hewitt showed some admirable slides of the internal anatomy of the house fly and pointed out to the audience the various points to be taken into consideration when dealing with the economic importance of this obnoxious household pest. He also showed slides of other flies of close alliance to the house fly and showed the differences so as not to allow the public to confuse them. The latter part of his address was chiefly taken up in showing the fly's relation to disease. In the discussion of this address, Dr. Bethune pointed out that the fly's name was being changed from the "house fly" to the "typhoid fly," impressing the audience with a few statements which go to prove the desirability of the change.

Mr. R. C. Treherne gave a paper on the nursery work in Ontario. After showing the importance of the industry, he showed the various insects that had been prevalent in the nurseries during the past season.

Dr. Bethune closed the proceedings with an address on the insects of the year. He said that there had been no serious outbreak of any kind but that the aphids which are always present were found this year in alarming numbers. These aphids were very bad on turnips, grain, lettuce, roses, cabbages, elms, beech and other forest trees, on apple, plum, cherry, and also on the conifers. The usual remedies of kerosene and whale oil soap were recommended. For aphids on roots of plants he suggested fumigation of nearby ant nests with carbon bisulphide. The spruce gall louse was also bad this year. Spraying with lime-sulphur and mechanical trimming were recommended. Various scale insects were in prominence also: e.g., San Jose, oyster-shell, terrapin, and the cottony maple scale. The squash bug, absent last year, was found again this year.

Household insects, such as carpet beetle, cockroaches, fleas and bed bugs still retained their prominence. Borax and Roach Food for cockroaches and tar paper and pyrethrum powder for fleas and bed bugs were recommended. Finally the speaker stated that cleanliness in the house and out in the fields and orchards was the best remedy for any insect pest.—R.C.T.

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Conference of Horticultural Societies

INTEREST and enthusiasm were manifest all through the various sessions of the fourth annual convention of the Ontario Horticultural Association held in Toronto, Nov. 9 and 10. Delegates were present from horticultural societies in all parts of

Mr. J. Lockie Wilson

Superintendent of Horticultural Societies and Secretary of the Ontario Horticultural Association. At the convention of the latter in Toronto last month, Mr. Wilson was presented with a Royal Crown Derby plate encircled with silver as a testimonial of recognition by the association for services rendered the societies. Mr. Wilson is also the secretary of the Ontario Vegetable Growers' Association.

the province. They were amply repaid for their attendance by the inspiring and helpful adresses given not only by our own Canadian authorities but by speakers from the United States. Chief among the visitors were Prof. John Craig, of Cornell University, R. F. Powell, of Fairhope, Alabama and Miss Louise Klein Miller, Curator of School Gardens, Cleveland, Ohio. The addresses of Mr. Powell and Miss Miller were along the lines of school garden work and vacant lot gardening. The grand results that are attending this form of effort in various cities in the States were ably described by both speakers. Miss Miller illustrated her address by a series of splendid stereopticon views.

Mr. R. B. Whyte, the newly elected president, upon assuming office expressed the view that the work of the association should be extended to include matters relating to the growing of fruit and vegetables by amateurs. This form of work, he claimed, is not now covered by either the fruit or the vegetable growers' associations.

The convention decided unanimously to urge the Ontario Government to increase the annual grant to the societies by $5,000 a year.

OFFICERS ELECTED

The following officers were elected:

Pres., R. B. Whyte, Ottawa; 1st vice-pres., Rev. A. H. Scott, Perth; 2nd vice-pres., J. P. Jaffray, Galt; sec., J. Lockie Wilson, Toronto; treasurer, H. B. Cowan, Peterboro.

Hon. directors, W. T. Macoun, Ottawa; Prof. H. L. Hutt, Guelph; W. B. Burgoyne, St. Catharines; Major H. J. Snelgrove, Cobourg.

Directors, District 1, F. B. Bowden, Vanleek Hill. District 2, W. J. Diamond, Belleville. District 3, Miss M. E. Balcklock, Toronto. District 4, J. O. McCulloch, Hamilton. District 5, Jas. Mitchell, Goderich. District 6, Geo. W. Tebbs, Hespeler. District 7, H. J. McKay, Windsor.

Auditors, A. O. Jeffrey, London; Col. R. E. Kent, Kingston.

Representative to the Canadian National Exhibition: Major H. J. Snelgrove, Cobourg.

Representatives to convention of American Civic Association: W. B. Bugoyne, St. Catharines, Ont.; J. Lockie Wilson, Toronto.

Nomenclature Committee: J. Cavers, Oakville; W. T. Macoun, Ottawa; Prof. H. L. Hutt, Guelph; R. Cameron, Toronto; H. B. Cowan, Peterboro.

Novelties Committee: W. T .Macoun, Ottawa; R. Cameron, Toronto; Wm. Hunt, Guelph, Miss Blacklock, Toronto.

PRESIDENT'S ADDRESS

Major H. J. Snelgrove, of Cobourg, in his presidential address, reviewed the splendid progress made by the Association and touched on the principal horticultural events of the year. On hearing of the deterioration that was taking place in the condition of Queen Victoria Park, Niagara Falls, as the result of its present management, he had written to Premier Whitney and drawn the matter to his attention. Premier Whitney had replied, expressing surprise and promising to have the matter investigated. Major Snelgrove pointed out that Queen Victoria Park is a national park that is visited by thousands of strangers every year. Its appearance therefore, concerns our national pride.

The suggestion that was made recently in the editorial columns of THE CANADIAN HORTICULTURIST that the Ontario Horticultural Association should extend the scope of its work and include fruit and vegetable growing for amateurs was endorsed. It was pointed out that the fruit and vegetable growers' associations are commercial in character and ignore this branch of work. Mention was made of the splendid work being done by the C.P.R. to encourage flower growing around its stations throughout Canada and of the excellent bulletin issued last summer on perennials and prepared by Mr. W. T. Macoun, of the Experimental Farm, Ottawa. Tho bill board nuisance was condemned.

TREASURER'S REPORT

The report of the treasurer, Mr. H. B. Cowan of Peterboro, showed total receipts of $201.85 and total expenditures of $106.60 leaving a balance of $95.25 on hand. Some 38 societies had paid two dollars each to affiliate with the provincial association.

SUPERINTENDENT'S REPORT

Superintendent J. Lockie Wilson, of Toronto, reported that the year had been a

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successful one for the horticultural societies of Ontario. While the final returns had not been received it was evident that the expenditures as well as the membership for 1909 had largely increased. When the societies which had applied for organization had attained a legal status there would be nearly 10,000 members of horticultural societies. Haileybury had filed its application and begun its work of civic improvement with a membership of over 100. The Twin Cities of Port Arthur and Fort William had caught the spirit of floriculture and were beginning to organize societies. The towns of Milton, Oshawa and Whitby had formed societies during the year.

Comparing 1908 with the previous year, the total expenditures, in the following branches of all of the societies were:

	1907	1908
Lectures and periodicals..	$2593.00	$3280.00
For Exhibitions	$4172.00	$4543.00
Seeds, bulbs, and plants	$5649.00	$6854.00

The total actual amount expended in 1907, was $17,353.00 and in 1908, $20,882.00.

Returns for 1909 received from 46 societies since the annual meetings held during the first week in November showed a net gain in membership of 500. The increase in expenditure was $2,400.

A number of successful meetings had been held in different parts of the Province during the year at which Mr. Everet Weed, Landscape Architect, of Chicago, was the principal speaker. Mr. Weed was a practical gardener and his lectures were illustrated by lantern slides which made them attractive.

A number of towns and cities had applied to the Department for assistance in laying out their public parks and squares and Prof. Hutt had done good work in this connection. School teachers, too, were turning their attention to the study of plants and flowers with the greatest educational uplft to all concerned.

Two amendments had been made to the Horticultural Societies Act during 1909. The first reduced the maximum grant to new societies during the first year of their existence from $100 to $75. The second amendment set the maximum grant any society could recive at $800.

BILL BOARD NUISANCE

The bill board nuisance received considerable attention. Pres. Snelgrove expressed regret that the bill, regulating billboards, that was introduced in the Ontario Legislature at its last session, by Mr. Evan Fraser, M.L.A., had been killed in the municipal committee. Numerous petitions favoring its adoption were sent, at the time, to members of the Legislature. Tho bill had been supported by Hon. Mr. Hanna. The agitation was one that should be pushed vigorously. Bill boards are supported by men who object to pay taxes on vacant land. Such men rejoice to see their neighbors build nice houses as the value of their property is thus increased and they are enabled to derive a greater revenue from the bill boards they erect on their own vacant land. While the neighbors of these men do what they can to improve and beautify the district these men debase the neighborhood by their ugly signs and they do so sordidly and selfishly. Bill boards ought to be taxed to the hilt. If their erection cannot be prevented they should be properly taxed and restricted.

Mr. C. C. James, Deputy Minister of Agriculture, drove this point home. While in Kristiania, Norway, last summer he had noticed a number of closed boxes on the streets something like those used by the police of Toronto from which to telephone for the patrol. On making inquiries he was informed that they were used as municipal billboards. The city owned them all. Bills could not be posted anywhere in the city until they had been inspected and approved by municipal officers and then only on the civic bill boards. A charge was made by the municipality for the use of these boards. Mr. James thought that in Canada we might well follow such an example.

SOME OF THE ADDRESSES

The addresses by the various speakers were of a high order of merit. Space does

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not permit their publication in full. Elsewhere in this issue appear the papers of Miss M. E. Blacklock, of Toronto, on "Arrangement of a Flower Garden," and Prof. H. L. Hutt, on "Making the Work of Horticultural Societies more Effective," The report of the Nomenclature Committee will be published in full at the first opportunity. A portion of it appears on another page of this issue.

SCHOOL GARDENS

In the United States school gardening is of comparatively recent introduction, but is spreading. School authorities are generally indifferent. In 1904 in Cleveland there were four school gardens, three in school yards and one in a vacant lot. In 1905 a department of school gardens was created with Miss Miller as Curator. Now 36 school yards have been improved and 25 others are being planted this fall. These school gardens have lessened vandalism and the behaviour of the children is vastly improved. Mr. R. B. Whyte, Ottawa spoke of work on similar lines done in Carleton County through the benefactions of Sir W. C. McDonald.

Mr. C. C. James, Deputy Minister of Agriculture in commenting on Miss Miller's address, reminded the audience of the work at the Broadview Boys' Institute in Toronto, which is producing excellent results. An English visitor stated that she had to come to Canada to get pointers on such work among boys. In New Brunswick there is also a farm where weakly boys from the old land are kept and brought into good health before being sent out to work on farms. There seemed to be something in connection with work on the land which acted as a regenerating influence on mankind.

Mr. R. F. Powell, Fairhope, Alabama, a member of the Gardening Association of America, spoke of the aims and aspirations of that organization. At Detroit in 1894 vacant lots were beyond expectation. In 1897 the work was started in Philadelphia and from a small beginning 700 to 800 families were now helped by their cultivation of these vacant lots. The lots were divided into sizes of a quarter of an acre or any size desired, and strict rules were laid down to prevent trespassers, etc. Improved health was also brought about by the people being in the open air. In Buffalo, too, the good work had been carried on, and beautiful gardens now replace weeds and rubbish heaps, and vigor is seen instead of pale faces and il health. An increased improvement is seen in the gardens every year, and rivalry is keen as to who shall have the best garden.

Mr. H. H. Groff, Simcoe, the well known hybridist, spoke on "Physical Disintegration of the Tissues, or Natural Death of Plants." While there is little difficulty in perpetuating plants of vitality the moment the experimenter tries to reproduce characteristics as to color or other desirable qualities then the question of vitality becomes acute. There is a theory that death of plants is due to auto-intoxication, but this is based on the fact that certain lower plants, as bacteria and yeasts die by self produced poison. Taking the gladiolus, color can be reproduced up to 25 per cent. and quality up to 75 per cent. The first strain on plant is in flowering then in seed bearing, also in intense cultivation. The latter often develops tissue directly opposite to that making for longevity. Field culture is more favorable. In Canada gladioli are being produced superior in point of quality, variety, and vigor, fully 90 per cent. ahead of the old world.

"Improvement of Parks," was the theme

BARN ROOFING

The "Eastlake" Steel Shingle is the only absolutely weathertight shingle on the market. Let us tell you why. A shingle to be proof against the severest storms must have at least a *three inch overlap.* The

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is the only shingle that has that much. The so-called four-lock shingles have only an inch and a quarter overlap—not enough to keep out the drifting snow and rain, so this proves the "Eastlake" the only waterproof shingle.

The roofing problem solved. Our free booklet, "Eastlake Metallic Shingles," tells how.

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YOU know it costs as much in time, labor, seed and implements to raise a poor crop as it does to raise a good one. You know also that unless your land is kept constantly supplied with lime, nitrogen and phosphates and the ingredients of barnyard manure it becomes worn out and loses its fertility.

You know further that it costs more, and trebles your labor, to spread manure by hand than it does to use a well-made manure spreader.

Maybe you don't know that one load of manure evenly spread by a mechanical spreader is worth four loads scattered by hand—

And that your crop, whether rotation or continuous, will be increased from 20 to 40 per cent by the use of an

I. H. C. Manure Spreader

Made in two styles as follows:

The Corn King, Return-Apron Spreader.

The Cloverleaf, Endless-Apron Spreader.

I. H. C. spreaders are made of the best material—wood and steel. They have powerful steel frames and steel-bound boxes, which damp manure cannot rot.

I. H. C. spreaders are easily drawn. They can be adjusted to spread a thin or heavy coat with equal evenness.

I. H. C. spreaders are so simple in operation that a boy can do the work which used to require a strong man.

An I. H. C. spreader will save in time and labor more than enough to pay for itself in one season.

Your increased income from better crops will be clear profit.

Scientific experiment has proved that this profit will vary from $4.00 to $20.00 per acre.

You cannot afford to be a half-crop farmer and there is no reason why you should be one.

An I. H. C. spreader will give you the full return from your land, whatever the size of your farm.

Call on our agent in your town and talk the spreader over with him, or, if you prefer, write nearest branch house for catalogue and other information.

CANADIAN BRANCHES: Brandon, Calgary, Edmonton, Hamilton, London, Montreal, Ottawa, Regina, Saskatoon, St. John, Winnipeg.

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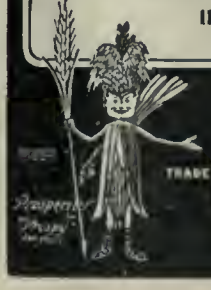

THE I·H·C LINE

of Mr. J. P. Jaffray of Galt. Berlin Park was the first organized in Canada. There are 8 or 9 Park Commissions now in Ontario. One is badly needed in Toronto. Island Park should be one of the finest on this continent. Philadelphia has 25 miles of boulevard, running from park to park. That city has a continuous policy as to parks. Toronto should do the same. There must be playgrounds for children. A continuous policy is absolutely necessary.

GOVERNMENT GRANT

Rev. A. H. Scott of Perth and Mr. W. B. Burgoyne of St. Catharines, showed convincingly the reasons that have led the horticultural societies to apply for an increase in their government grant.

HORTICULTURAL SOCIETY WORK

"How to Increase the Usefulness of the Smaller Horticultural Societies," was the title of a paper by James Mitchell, Goderich. Among the lines suggested were beautifying school grounds, and encouraging a love of horticulture among the scholars; offering prizes for best kept lawns and gardens, distributing seeds, bulbs and plants, also civic improvement in many ways, especially as regards public buildings.

Prof. John Craig, Cornell University, spoke on Civic Improvement in America, showing how all things depend upon the individual. Civic improvement was not limited to beautifying the city, but was concerned in the improvement of morals. Improvement should not be confined to the towns, but should spread to the country.

James Wilson, Park Commissioner, Toronto, reviewed the history of Public Playgrounds in the United States and Canada. Many of these playgrounds are equipped with the simplest apparatus, but served their purpose well and were always crowded with children. Supervisors are necessary to keep out hoodlums. Separate divisions for boys and girls are advisable and shelters from the weather must be provided. Open air bathing grounds for summer and closed for winter use are features that can be added.

In Toronto in 1908 a start was made. This year seven schools were provided with grounds, which are kept open even during the holidays. The first municipal play ground here was opened this year.

DIRECTORS' REPORTS

Reports of the directors representing the seven districts of Ontario were presented and were of an encouraging nature, showing the excellent work being done by the societies.

THE Experienced Fruit Grower is the man who realizes the importance of using only high-class Sprayers. He knows that spraying is what you make it—a hard job or an easy proposition, depending on the outfit. Most Growers have learned that it doesn't pay to bother with cheap ones. Goulds' Sprayers have a reputation to maintain. They comprise a line of

Over 25 Styles

for both Hand and Power—all simple—all working parts brass to withstand wear and the chemical action of the solutions. Don't be caught experimenting with a cheap sprayer—see that the name Goulds is cast on the pump. Its presence is the assurance you are buying the very best Sprayer made. It guarantees satisfaction and reliability. Write for book.

"HOW TO SPRAY, WHEN TO SPRAY, WHAT SPRAYER TO USE"

It is full of interesting information and contains many valuable formulas for spray mixtures. Copy sent free on request.

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We build Pumps for Every Service

BLACK KNIGHT STOVE POLISH

Has the "Black Knight" come to your home?

Let him show you the quick and easy way to shine the stoves.

"Black Knight" takes all the hard work and dirty work out of stove polishing.

It's a paste—so there is no watery mixture to be prepared.

Just a few rubs with cloth or brush brings a mirror-like shine that "you can see your face in". And the shine lasts!

Most dealers handle and recommend "Black Knight" Stove Polish. If your dealer cannot supply it, send 10c. for a big can—sent postpaid.

THE F. F. DALLEY CO. LIMITED, Hamilton, Ont. 18

Makers of the famous "2 in 1" Shoe Polish.

I would not be without THE CANADIAN HORTICULTURIST for three times the subscription price. I get a great deal of useful information from it.—J. E. Lapthorn, Queen's Co., P. E. I.

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It takes all the work out of wash day. Improved Roller Gear makes washing quick and easy.

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A PATENT PATCH

They mend all leaks in all utensils—tin, brass, copper, graniteware, hot water bags, etc. No solder, cement or rivet. Anyone can use them; fit any surface, two million in use. Send for sample pkg., 10c. COMPLETE PACKAGE ASSORTED SIZES, 25c., POSTPAID. Agents wanted.

Collette Mfg. Co., Dept. V. Collingwood, Ont.

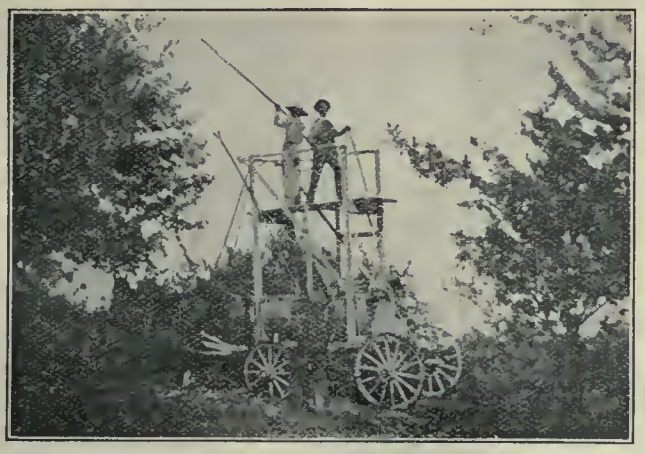
A Short Course in Fruit Growing

At the Ontario Agricultural College, Guelph, Canada

This Course absolutely FREE

January 25th to February 5th 1910

Send TO-DAY for an Illustrated Calendar It will be mailed free on application to:



Spraying Outfit

During the two weeks between January 25th and February 5th, 1910, we offer you free THE BEST CHANCE YOU EVER HAD to secure the most up-to-date and useful information on the growing and handling of fruit for both local and distant markets.

Fruit growing has proved very profitable to many young men in Ontario. Every farmer owning an orchard, or land suitable for growing an orchard, should wake up to the fact that such parts of his farm will bring in returns from fruit away above what is possible from the ordinary farm crop.

The Short Course in fruit growing is specially arranged for the practical farmer, either old or young, who cannot find the time to take a College Course in this subject, but who desires more accurate information than can be obtained by reading.

The subjects discussed will embrace ALL MATTERS OF IMPORTANCE TO FRUIT GROWERS, including selection of land for fruit; varieties budding and grafting; strawberry growing; care of young orchards; spraying outfits; preparation and application of sprays; peach growing; packing, handling and shipping; requirements of different markets; organization and management of selling associations.

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There are No Fees and No Examinations

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Delegates should be careful to secure the STANDARD CONVENTION CERTIFICATE when purchasing their one-way Ticket

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Drafts, Money Orders and Letters of Credit issued available in any part of the world
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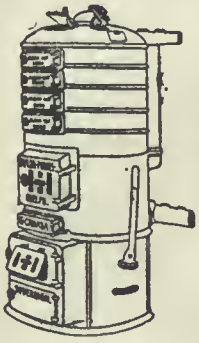
HOT WATER
BOILER



'Sovereign' Hot Water Boiler

Its advantages cannot be over estimated for hot house heating. It is reliable and economical and no accidental injury will disable it from work.

Built in sections it will stand endless use—the parts most subject to wear being readily replaceable.

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British Columbia

This province sent about 800 boxes of fruit to England in charge of Mr. W. E. Scott, Deputy Minister of Agriculture, for display at the Royal Horticultural Show and at about 20 other exhibitions in Great Britain. The fruit was contributed from all over the province by associations, exchanges, dealers and growers.

Mr. James Johnstone, Nelson, reports that his yield of apples was quite up to the average. He received $2.25 a box for choice grade fall apples and $3 a box for winter varieties such as Red Cheek Pippin and Spitzenburg, f.o.b., Nelson. In a letter to THE CANADIAN HORTICULTURIST Mr. Johnstone says, "Several cars of Ontario's apples arriving here have been condemned and destroyed for disease."

Uniform Judging of Fruits

R. W. Starr, Wolfville N. S.

At the annual meeting of Nova Scotia Fruit Growers' Association held in Berwick last December, the subject of judging fruits at exhibitions was brought up and pretty thoroughly discussed. The idea seemed to be general, that some practical system that could be understood by both exhibitor and judges, and so arranged as to be acceptable to the whole Dominion, is what is wanted.

A committee was appointed to carry out this idea, and to draft score cards for plates and collections, to be submitted to the executive for approval. After some delay and correspondence a rough draft was prepared and submitted. This was referred to Mr. W. T. Macoun of Ottawa for revision and approval, and we must thank him for very efficient assistance in perfecting the work so far as we have gone.

Printed copies of these cards, with explanations have been sent to fruit growers' associations, agricultural colleges, horticultural magazines and papers of Canada, asking for full discussion and comment, with the view to make the work acceptable to the fruit growers of the Dominion, and that the cards may be used as a standard to decide all cases of close competition, if not required in every case.

Up to the present time answers have been received from a number of those to whom copies were sent and so far all have aproved of the movement and promise support in their several positions and capacities.

NOTE.—Lack of space in this issue prevents the publication of comments, further than to mention that the proposed cards have been approved of in most particulars by Mr. W. T. Macoun, Central Experimental Farm, Ottawa; Prof. W. S. Blair, Macdonald College, Que.; Prof. H. L. Hutt, O.A.C., Guelph; Mr. S. B. Hatheway, Fredericton, secretary of the New Brunswick Fruit Growers' Associations; and others. At the recent convention of the Ontario Fruit Growers' Association the proposed cards were discussed and the general feeling was in favor of their adoption, except in one essential, but the matter was left in the hands of a committee. Exception was taken to the fact that no allowance is made for quality in the score card for plates. Prof. John Craig of Cornell University said that quality should not be overlooked in plate exhibits. He stated also that uniformity in score cards should be adopted by all the provinces. Mr. W. T. Macoun suggested that a second score card for plates be adopted that would include quality so that this might be used when needed. The N.S. proposed cards are printed on this page. Fruit growers in all the provinces are invited to discuss their merits through these columns. Comments already received by Mr. Starr and by THE CANADIAN HORTICULTURIST will be published in next issue.—Editor.

Scale of Points for Judging Fruit

Proposed by the Fruit Growers' Association of Nova Scotia, 1909

SCORE CARD FOR SINGLE PLATES NAMED		SCORE CARD FOR COLLECTIONS	
POINTS.		POINTS.	
25	Freedom from Blemish.	20	Freedom from Blemish.
25	Color.	15	Color.
20	Uniformity.	10	Uniformity.
15	Form.	10	Form.
15	Size.	10	Size.
		10	Commercial Value
		10	Quality.
		10	Nomenclature.
		5	Arrangement.
100		100	

EXPLANATION OF TERMS

Freedom from Blemish.—Any injury by Insects, Fungus, Bruises, Loss of Stem or other cause, lessening the value or appearance of the Exhibit, may be called a Blemish.

Color.—Bright, clear, well developed color, characteristic of the variety preferred.

Form.—Represents the perfect or normal type of the variety.

Uniformity.—Specimens should be as nearly alike in size, form and color as possible.

Size.—Indicates care and skill in production, and usually, other points being equal, size wins.

Commercial Value.—Standard, known market varieties as grown in and suited to the district, preferred.

Quality.—To be considered in collections. Seedlings, new varieties on trial, or other sorts in competition.

Nomenclature.—Exhibits must be correctly named according to the nomenclature adopted by the Society, Association or Exhibition at which they are shown.

Arrangement.—Taste and skill in staging so as to attract attention and add to the general appearance of the exhibit.

A few hundred cases of apples have been sent from Nova Scotia to Great Britain for distribution among the various shows held there, other than the Royal Horticultural Show. Competent men of the province were chosen to select and pack the fruit and the government has guaranteed a fair price for same when sold after being exhibited.

At the convention of the Ontario Fruit Growers' Association, the visiting speakers from the United States, Messrs. Bassett, Cornell and Falvay, gave valuable information and helped materially to make the meetings a success. They deserved the thanks of the association which was tendered to them by vote at the concluding session. Come again.

FOR SALE AND WANTED

Advertisements under this heading inserted at rate of two cents a word for each insertion, each figure, sign or single letter to count as one word, minimun cost, 25 cents, strictly cash in advance.

AGENTS make big money selling "Vol-peek" Granite Cement. Mends holes in Graniteware, Iron, Agate, Tinware, etc. Mends a hole in one minute. Every housewife buys. Greatest seller on the market. Agents make over 100 per cent. profits. N. Nagle, Westmount, Que.

WANTED.—Persons to grow mushrooms for us during Fall and Winter Months. Waste space in cellar, outhouse or barn can be made to yield $15 to $25 per week all Winter. Send for illustrated booklet and full particulars. Montreal Supply Co., Montreal.

FOR SALE.—Steam pipes, all sizes, nearly new, cheap—also belting, pulleys, etc. Write for prices, Imperial Waste and Metal Co., 7 Queen Street, Montreal.

POULTRY DEPT.

Conducted by S. Short, Ottawa

Frequently the question arises as to which are the best females to keep for winter laying. In weeding out sometimes it is either the hens or pullets that have to go for lack of room. Experience has taught the writer that the best winter layers are yearling hens that have moulted early and that were late-hatched pullets the preceding season. Next comes early-hatched pullets. As a rule the yearling hens will lay larger eggs. The late-hatched pullets rarely lay before the middle of winter. In any event, if yearling hens and pullets are available, they are likely to be more profitable than older hens. This applies to the heavy utility breeds such as Brahmas, Cochins, Plymouth Rocks, Orpingtons and Wyandottes. Hens two and three years old sometimes prove exceedingly profitable of such breeds as the Minorcas, Leghorns and Andalusians.

Care should be exercised not to overfeed the laying stock when they are first shut in their winter quarters or in fact at any time. Enclosed fowl will not get the exercise they have been enjoying when running at large and are more susceptible to crop binding and going off their food. Keep them fairly hungry for the first week and then increase allowances. By feeling their crops at night, a good idea may be obtained as to whether or not they are getting enough or too much. When feeding in the morning, a general inspection of the fowl may be made and any birds that appear mopish and indifferent about eating should be caught and the crops felt to see if they have indigestion. If so, they should be put in hospital for a day without food and plenty of water. If no change has taken place, the bird should be treated by feeding with lukewarm water from a spoon and the crop kneaded until the contents are soft and the fowl returned to the hospital for another day. Usually one treatment of this kind will effect a cure.

Government authorities and others advocate the curtain front house as being the best adapted for this climate. Descriptions and plans tell us they are easily and cheaply built and results from fowl so kept are better than any other method. They are made with one thickness of boards so do not cost much. The curtain front is cheaper than glass and the fowls are better housed and appear healthy and lay better because the air is fresher. These statements bear some explanation. Any curtain front houses I have inspected and I have seen a good many have especially constructed sleeping rooms, double-walled and double ceiling, either sealed under the rafters or else a small loft made of slatted wood and the space between the slats and the roof stuffed with six or eight inches of dry hay or straw. The fowl, therefore, sleep in a warm and most comfortable sleeping apartment which I think is absolutely necessary for laying fowl. The curtain front is on the scratching pen adjoining which is sometimes very small and made of one thickness of first-class matched lumber so that there are no cracks or creaces for the cold wind to get through. The fowl go out into these whenever they are disposed to scratch and dust themselves. On the whole the arrangements are good and very comfortable and better than some of the old time double boarded houses almost hermetically sealed and which admit no fresh air and are damp and deadly. These curtain houses seem specially suited to small combed fowl. I have not seen Minorcas or Leghorns kept under these conditions nor do I think the scratching room would be warm enough for them in zero weather for their large combs easily freeze and frost bites will stop hens from laying.

Renew Your Subscription Now.

SOMETHING NEW IN FRUIT TREES

We offer you PEDIGREED TREES. This is a New Departure in the Nursery Business. We Propagate from Selected Bearing Trees. Our Stock is High-class, and we want your trade.

AUBURN NURSERIES,
QUEENSTON, ONTARIO.

The **horse** does all the work, except holding the pole, with the **H. P. Spramotor.** It can be operated by either horse or hand. Has 8 nozzles at 175 lbs. pressure, which practically smoke the tree with spray. All automatic. The number of nozzles can be arranged to suit size of trees. The largest tree may be sprayed. Same price for 1 or 2 horses.

The **H. P. Spramotor** can be arranged for vineyards, row crops, strawberries or grain crops. The nozzles will not clog. **Agents Wanted.**

Get our Free Treatise on Crop Diseases

HEARD SPRAMOTOR CO.
1388 KING STREET, LONDON

The tone, touch and magnificent wearing qualities of the New Scale Williams Piano are the logical results of the faultless materials and superb workmanship which enter into its construction.

The Harmonic Tone Prolonging Bridge—Acoustic Rim and Special Method of Ribbing—Grand Piano Scale and Construction—and many other exclusive features add musical excellence and durability to

New Scale Williams

When you buy a piano, you want the best. May we send you our richly illustrated booklets, in which we give some of the reasons why the New Scale Williams is the universal choice of discriminating musicians and artists?

We also invite your investigation of our easy payment plan, full particulars of which will be sent on request.

The Williams Piano Co. Limited,
OSHAWA, Ont.
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Montreal, Que., 733 St. Catherine St. W.
London, Ont., 261 Dundas St. 112A

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Animals and Game Heads

We teach you **by mail** to prepare and mount all kinds of **Birds, Animals, Heads, Fish; Tan Skins** and **make Rugs,** etc. Our school teaches the latest and best methods. Easily, quickly learned **at home** by men, women and boys. Taxidermy is a necessity for hunters, trappers and Nature lovers.

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5159 Elwood Building OMAHA, NEBRASKA

OXO

is the perfect fluid beef — the crowning achievement of the Company that originated concentrated beef extracts more than forty years ago.

Try it to-day—then you will use it all the winter. 21

This picture shows the **Horse Power Spramotor** spraying vineyard.

If stand pipe hits a post it folds back behind rig and rights itself, each side independently. Has auto. control for height, width and direction of nozzles. 12-gallon air chamber, nozzle protector.

The **Horse Power Spramotor** can be rigged for potatoes, orchard or weed destruction. Send for free particulars and free Treatise on Crop Diseases. **Agents Wanted.**

HEARD SPRAMOTOR CO., 1386 King Street London, Ont.

Tree protected by Wooden Veneer and banked up with earth to prevent entrance of pests at bottom.

PROTECT YOUR TREES

Against Rabbits, Mice and other vermin

Many young orchards are greatly injured each year by these pests. Wrap the trunks with

Wooden Veneers

and damage will be prevented. These veneers will protect also against sun-scald.

Send at once to

THE OAKVILLE BASKET CO.

OAKVILLE, ONT.

COMING EVENTS

Under this heading, notices of forthcoming exhibitions and meetings of horticultural importance will be published. Send the information as long in advance as possible.

CONVENTIONS.

Charlottetown, Prince Edward Island Fruit Growers' Association ....Dec. 2-3.

Kentville, N.S., Nova Scotia Fruit Growers' Association .. ..Dec. 8-9.

Omaha, Neb., American Breeders' Association, ...Dec. 8-10

Macdonald College, Que., Quebec Pomological Society .....Dec. 8-9.

Victoria, British Columbia Fruit Growers' Association .....Jan. 28.

EXHIBITIONS.

Denver, Colo., Colorado National Apple Exposition .... Jan. 3-8.

Horticultural Societies' Grant

The need for an increase in their grant from the government is felt by the horticultural societies of Ontario. At the convention of the Ontario Horticultural Association in Toronto last month a resolution was passed asking the government to increase the grant by $5,000. The present grant is $8,000. The following letter sent recently to Mr. J. Lockie Wilson of the Department of Agriculture, Toronto, by Mr. Thomas Natress, sec-treas. of the Amherstburg Horticultural Society, is typical of the general feeling in this matter:

"I am instructed to report to you as Superintendent of Horticultural Societies for the province that the Horticultural Society of Amherstburg, 90 members, in annual session assembled, did, on Nov. 5, pass the following resolution and order a copy thereof forwarded to you with the request that the matter be brought before the government, viz., That, in the estimation of this society, and in view of the importance of the work of civic improvement being done by local horticultural societies, and because of the annually increasing number of these societies throughout the province, and the developing interest of the people; the time has come when the government of the province of Ontario could, to the great advantage of the people, increase the appropriation made for horticultural societies' use."

A copy of the first report of the fruit branch of the Department of Agriculture of Ontario has been received. It is full of useful information and contains many illustrations of educational value. The report has been well compiled and reflects much credit upon Mr. P. W. Hodgetts, the director of the branch. It reviews the work of the fruit branch for 1908 and includes reports from the experimental fruit stations in the province.

Messrs. Wm. Cooper & Nephews wish it to be understood that they do not claim at present to kill San Jose scale, and are not selling their spray fluids for that purpose. They have been most successful in dealing with oyster-shell bark-louse this season and have not had one complaint from their customers as to the effectiveness of their fluids in dealing with this orchard pest. No better and cleaner fruit has been grown anywhere than in the Bowmanville district from trees sprayed with V.1., V.2. and V.3. Fluids. The results from the use of these fluids this year have been most satisfactory.

40 Million Square Feet of Oshawa Shingles Cover Canadian Roofs Today

A ROOFER'S square is 10 x 10 ft.—100 square feet. There are 400,000 such squares of Oshawa Steel Shingles in use to-day in Canada. Enough steel, that, to make a pathway a foot wide and 7,576 miles long. Almost thrice the length of the C.P.R. tracks. Nearly enough to roof in a thousand acres of land! And the greater part of those Oshawa Shingles will be right on the job, good, weather-tight, rain-proof roofs, when your grandsons are old, old men. They are good for 100 years.

THEY DO ALL WE SAY THEY WILL AND MORE TOO

ADVERTISING alone never sold that vast area of Pedlar Shingles. Smooth salesmanship never kept them selling; nor glib talk; nor lying abuse of competing goods; nor cut price. Those things do sell shingles, right here in Canada's roofing trade. But Oshawa Shingles sell, and keep on selling, for a different reason. They make good. They keep out the wet, year after year, as we say they will. They protect buildings from fire and lightning, as we say they will.

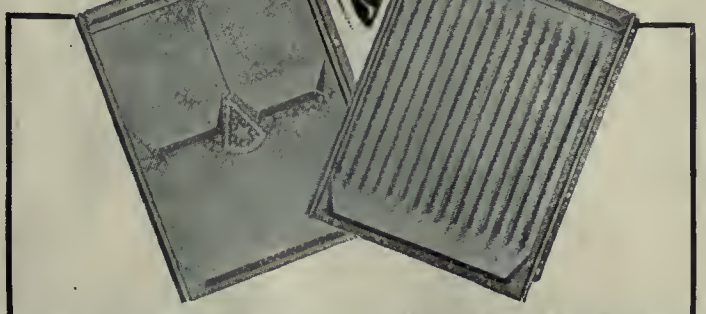
THEY KEEP ON SELLING BECAUSE THEY MAKE GOOD

THIS IS THE ONE ROOFING IT PAYS BEST TO BUY

Figured by price-cost, "Oshawa' Guaranteed Steel Shingles are as cheap as the poorest wood shingles. Figured by service-cost—the length of time they will make even a passably good roof—wood shingles cost Ten Times as much; slate costs six times as much; and the stuff they call "ready roofing" costs Thirty-Three Times as much! These are facts. They can be proved to you. Proved by figures: by the experience of hundreds of other people who doubted at first, just as you perhaps doubt. Proved, absolutely! You want that proof before you roof. Get it! Send for it to-day.

No Other Roofing Does This

Stays rain-and-snow-and-wet-proof for fully a hundred years. Absolutely fireproofs the top of the building for a hundred years. Protects the building from lightning for a hundred years. Resists the hardest winds that blow for a hundred years. Keeps the building it covers cooler in summer, warmer in winter, for a hundred years. Gathers no moisture, and never sweats on the under side for a hundred years. Needs no painting, no patching, no care nor attention for a hundred years. WHAT MORE CAN YOU ASK OF A ROOF?



The picture above, on the right, shows the new Spanish pattern Oshawa Galvanized Steel Shingle (Guaranteed). That on left is the standard pattern.

Probably 1935 seems a long way off to you. By that time, I suppose, aeroplanes will be as numerous in the skies as steamers are on the seas now. I don't believe the fall of an aeroplane upon it would harm a Pedlarized-roof.

Yet, when 1935 begins the guarantee that goes with every square foot of my shingles will still have twelve months to run.

You may not be around then. I may not be here. But this powerful Company I head will be doing business; and the price of putting a new roof on your building will still stand as a mortgage upon our assets.

Understand me clearly: if the Oshawa-shingled roof you put on this year fails—even on the last day of 1935—to make good to the letter the plain promises of our Guarantee, there's a new roof for nothing going on that building just as soon as we can get a man there.

Think that over for a minute. Think if it isn't a pretty clear evidence of merit in roofing.

That is what I call making good with Oshawa shingles. That is what you pay five cents per year per square for.

Seems to be worth the money, doesn't it?

G. A. Pedlar

THIS IS THE ONE ROOFING THAT IS GUARANTEED

Some makers of 'metal shingles' (ever notice how careful they are to avoid saying steel?) point with pride to roofs of theirs 25 years in service. BUT THEY DON'T GUARANTEE their shingles for 25 years to come. You buy Oshawa Steel Shingles—the only kind that IS guaranteed—upon the plain English warranty that if the roof goes back on you in the next quarter-century you get a new roof for nothing. You can read the Guarantee before you decide. Send for it. See if it isn't as fair as your own lawyer would make it on your behalf. Isn't that square?

Book and Sample Shingle Free

Send for free book and free sample of the Oshawa Shingle itself. It will interest you to study it. You will see the actual construction. You will see that the Pedlar Improved Lock, on all four edges of the shingle, makes it certain that moisture never can get through any Oshawa-Shingled roof. You will see how the Pedlar process of galvanizing drives the zinc right into the steel so it never can flake off. You will be in no doubt about which roofing after you have studied this shingle.

Send for it, and the book and Guarantee. Send now.

It will Pay You to Pedlarize All Your Buildings

"To Pedlarize" means to sheathe your whole home with handsome, lasting and beautiful steel—ceilings, sidewalls, outside, roof. It means to protect yourself against cold; against fire; against much disease; against repair-bills. Ask us and we will tell you the whole story. Just use a postcard and say: "How about Pedlarizing my house?" State whether brick or frame. Write to-day.

301

The PEDLAR PEOPLE of Oshawa

ESTABLISHED 1861

HALIFAX	ST. JOHN, N.B.	QUEBEC	MONTREAL	OTTAWA	TORONTO	LONDON	CHATHAM
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ADDRESS OUR NEAREST WAREHOUSE. WE WANT AGENTS IN SOME LOCALITIES. WRITE FOR DETAILS. MENTION THIS PAPER.

Niagara Brand Lime-Sulphur Spray

MADE IN CANADA

NIAGARA is the Standard of Value for Fruit Tree Sprays. It is used by the most successful Fruit Growers in every Fruit District of the Pacific North-west, and in many of the Eastern States, and has already proven its worth in Ontario.

THERE IS A REASON WHY

NIAGARA is made under special treatment (of which we have secured all rights for Canada). The only known process by which is made a permanent and reliable solution of lime and sulphur of sufficient strength to meet all requirements.

Anybody can make a Spray which **may do** sometimes. The process by which NIAGARA is made **insures the best work at all times.**

NIAGARA is the best known remedy for **Apple Scab, Leaf Curl,** and most all forms of fungi, **San Jose Scale, Oyster Shell Bark Louse, Blister Mite, Aphis, Bud Moth,** and all **Sucking Insects and Parasitic Life.**

Potato and **Tomato Blight** and **Mildew** of **Grape** have been successfully treated.

NIAGARA Brand Lime-Sulphur Solution has been proven by the highest authorities, after several years' work, equal to Bordeaux as a fungicide, and far less dangerous to use. It is also cheaper and always ready to use.

ARSENATE OF LEAD

ARSENATE OF LEAD has almost entirely supplanted Paris Green as a poison for Codling Moth, and other insects requiring a poison treatment. Such dissatisfaction as may have arisen because of burning or failure can be attributed to an improperly combined arsenate. NIAGARA BRAND ARSENATE OF LEAD is specially prepared with a view to **efficiency** and **safety.**

PRICES.—Because of manufacturing ourselves, and buying materials in large quantities, we are prepared to offer these Sprays at a much lower price than obtained last season.

PUMPS.—We are Canadian Agents for the famous BEAN SPRAY PUMPS —hand and power. Also a full line of Hose, Nozzles, etc.

SPRAY BOOK.—We are preparing a book, which we trust will be of value to the Fruit Growers, which will be mailed to you upon request.

NIAGARA BRAND SPRAY CO., LTD.
BURLINGTON, ONT.

NIAGARA SPRAYS are also made by:

NIAGARA SPRAYER CO., Middleport, N.Y. **BEAN SPRAY PUMP CO., Cleveland, Ohio**
OREGON SPRAY CO., Portland, Oregon **MEDFORD SPRAY CO., Medford, Oregon**
HOOD RIVER SPRAY MFG. CO., Hood River, Oregon

REMEMBER---Wherever Fruit Excels NIAGARA SPRAY is used